KENWOOD

20MHz OSCILLOSCOPE

CS-3035

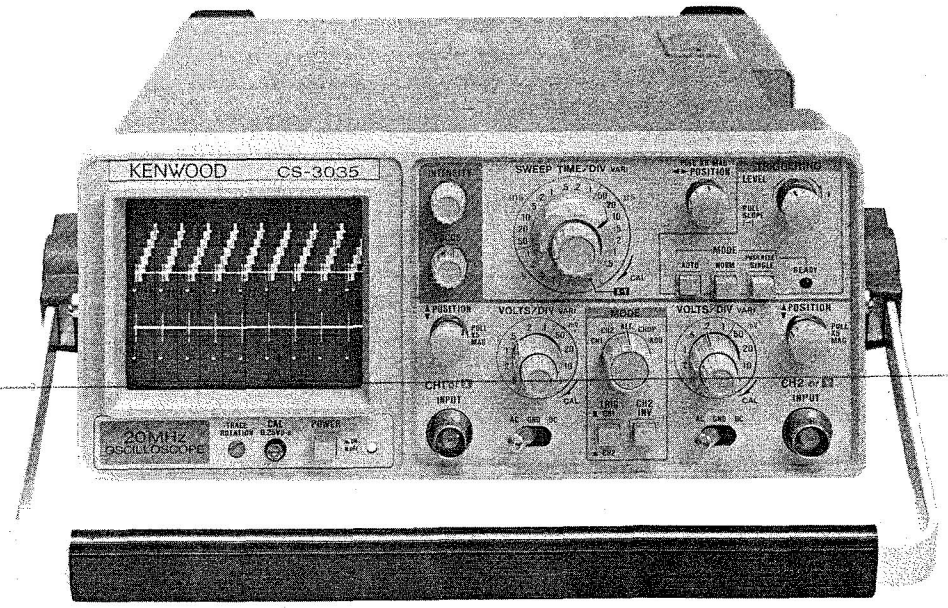
OPTION

DC POWER SUPPLY

BP-70

SERVICE MANUAL

KENWOOD CORPORATION



WARNING

The following instructions are for use by qualified personnel only. To avoid electric shock, do not perform any servicing other than contained in the operating instructions unless you are qualified to do so.

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CS-3035 SPECIFICATIONS

CRT

Type.....Rectangular high luminance CRT (with internal graticule)
Acceleration Voltage .....Approx. 1.8 kV
Display Area.....8 × 10 div flat-face (1 div = 6.35 mm)

VERTICAL AXIS

Operating Modes.....CH1, CH2, ALT, CHOP, ADD
Sensitivity.....5 mV/div to 5 V/div, +/−3%
Sensitivity Magnification ...5 times +/−5% (×5 MAG used)
Attenuator.....1-2-5 step sequence, 10 ranges, adjustable between ranges
Frequency Response
5 mV/div to 5 V/div.....DC: DC to 20 MHz, −3 dB
AC: 5 Hz to 20 MHz, −3 dB
×5 MAG used.....DC: DC to 4 MHz, −3 dB
AC: 5 Hz to 4 MHz, −3 dB
Input Impedance .....1 Mohm, approx. 40 pF
Rise Time.....17.5 ns or less (20 MHz)
Crosstalk.....−40 dB minimum
Polarity Inversion .....CH2 only
Chop Frequency.....Approx. 50 kHz
⚠ Maximum Input Voltage.....800 Vp-p or 400 V (DC + AC peak)

HORIZONTAL AXIS

Operating Modes.....X-Y operation selectable with sweep knob
CH1: X axis CH2: Y axis
Sensitivity.....Same as vertical axis (CH1)
Input Impedance .....Same as vertical axis (CH1)
Frequency Response.....DC: DC to 200 kHz, −3 dB
AC: 5 Hz to 200 kHz, −3 dB
X-Y Phase Difference.....3° or less at 10 kHz
⚠ Maximum Input Voltage.....Same as vertical axis (CH1)

SWEEP

Sweep Type.....NORM: Triggering sweep
AUTO: Sweep free runs in absence of trigger
SINGLE: Single sweep
Sweep Time.....0.2 μs/div to 1 s/div +/− 3% in 21 ranges, 1-2-5 sequence, adjustable between ranges
Sweep Magnification .....5 times +/−5% (×5 MAG used)

TRIGGERING

Internal Sync.....INT, LINE
External Sync .....EXT
External Sync Input
Impedance .....1 Mohm, 40 pF or less
⚠ Maximum External Trigger
Input Voltage.....50 V (DC + AC_{peak})
Sync Coupling .....AC, HF_{REJ}, DC
Polarity .....+/−
Trigger Sensitivity .....

Coupling	Frequency	Amplitude (Voltage)	
		INT	EXT
DC	DC ~ 2 MHz ~ 20 MHz	0.5 div 1 div	0.1 Vp-p 0.2 Vp-p
HF_{REJ}	Attenuation at more than 1.5 kHz		
AC	10 Hz ~ 2 MHz ~ 20 MHz	0.5 div 1 div	0.1 Vp-p 0.2 Vp-p

AUTO: Same as above specification for above 50 Hz.

CS-3035 SPECIFICATIONS

CALIBRATION VOLTAGE .....Square wave (positive polarity)
0.25 Vp-p ±2%, 1 kHz ±2%

POWER REQUIREMENTS
Power Supply Voltage .....AC100/120/220/240 V ±10% 216 V~250 V 50/60 Hz
Power Consumption .....Approx. 22 W (at 100 V AC)

DIMENSIONS AND WEIGHT
Dimensions.....216 (width) × 89 (height) × 298 (depth) mm
Weight.....Approx. 4 kg

OPERATING TEMPERATURE AND HUMIDITY FOR GUARANTEED SPECIFICATIONS
5 to 35°C, 85% maximum RH

ACCESSORIES.....

Probe (PC-30)	2 pcs.
Panel Cover	1 pc.
Instruction Manual	1 pc.
Power Cord	1 pc.
Fuse (0.5 A)	2 pcs.
(0.3 A)	2 pcs.

BP-70 SPECIFICATIONS

Batteries ..... NiCad Batteries: 4000mAH × 10 (internal)
Other external battery: (+11.5 V to +13.5 V)
Input current .....2A (Approx. 2 hrs. use)
Output..... +18 V, −18 V, +110 V, +150 V
(each output voltage is unregulated)
Charging current ..... 300 mA (16 hrs/charge)
Charging frequency ..... 17 kHz
Switch..... CHG-OPE (front)
Internal and external (rear)
Dimensions..... 180 (W) × 41 (H) × 220 (D) mm
Weight..... 2.5 Kg
Ambient temperature and humidity..... 5°C to 35°C, 85% RH
Leak current ..... (Input current when the power is off) 200 μA max.
Other.....
- The input and output have a common ground.
- The negative side of the input can be connected to the unit ground.
- The oscilloscope cannot be used when the batteries are charging.

SAFETY

Before connecting the instrument to a power source, carefully read the following information, then verify that the proper power cord is used and the proper line fuse is installed for power source. If the power cord is not applied for specified voltage, there is always a certain amount of danger from electric shock.

Line voltage

This instrument operates using ac-power input voltages that 100/120/220/240 V at frequencies from 50 Hz to 60 Hz.

Power cord

The ground wire of the 3-wire ac power plug places the chassis and housing of the oscilloscope at earth ground. Do not attempt to defeat the ground wire connection or float the oscilloscope; to do so may pose a great safety hazard. The appropriate power cord is supplied that is specified when the instrument is ordered.
The power cords are shown as follows in Fig. 1.

Line fuse

The fuse holder is located on the rear panel and contains the line fuse. Verify that the proper fuse is installed by replacing the line fuse.

Voltage conversion

This oscilloscope may be operated from either a 100 V to 240 V, 50/60 Hz power source. Use the following procedure to change from 100 to 240 volt operation or vice versa.

1. Remove the fuse holder.
2. Replace fuse F 1 with a fuse of appropriate value, 0.5 amp for 100 VAC to 120 VAC operation, 0.3 amp for 220 VAC to 240 VAC operation.
3. When performing the reinsertion of fuse holder for the voltage conversion, the appropriate power cord should be used. (See Fig. 1.)
4. For the method of wiring selection in the primary side of the power transformer, refer to page 6.

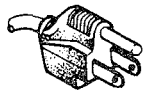
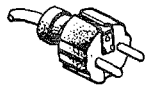
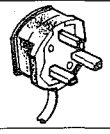
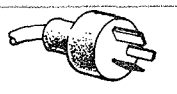
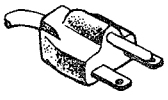
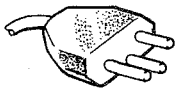
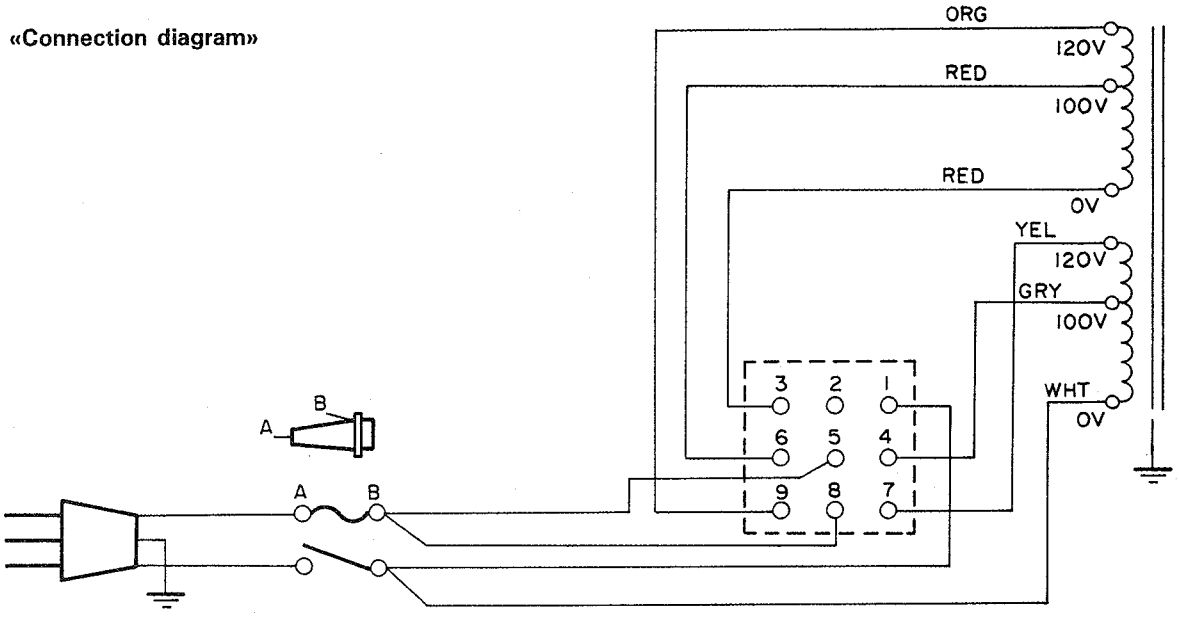
Plug configuration	Power cord and plug type	Factory installed instrument fuse	Line cord plug fuse	Parts No. for power cord and plate
	North American 120 volt/60 Hz Rated 15 amp (12 amp max; NEC)	0.5 A, 250 V Fast blow 6×30 mm	None	Cord: E30-1820-05
	Universal Europe 220 volt/50 Hz Rated 16 amp	North Europe 0.3 A, 250 V Fast blow 5×20 mm Other Europe 0.3 A, 250 V Fast blow 6×30 mm	None	Cord: E30-1819-05
	U.K. 240 volt/50 Hz Rated 13 amp	0.3 A, 250 V Fast blow 6×30 mm	0.8 A Type C	—
	Australian 240 volt/50 Hz Rated 10 amp	0.3 A, 250 V Fast blow 6×30 mm	None	Cord: E30-1821-05
	North American 240 volt/60 Hz Rated 15 amp (12 amp max; NEC)	0.3 A, 250 V Fast blow 6×30 mm	None	—
	Switzerland 240 volt/50 Hz Rated 10 amp	0.3 A, 250 V Fast blow 6×30 mm	None	—

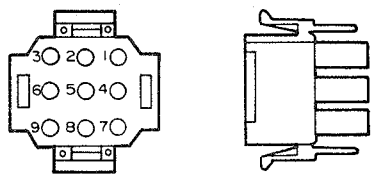
Fig. 1 Power Input Voltage Configuration

SUPPLY VOLTAGE SELECTION METHOD

«Connection diagram»



«Selection method»



Selection between input voltages is made by changing the connection pin.

	(a)	(b)	(c)
AC 100 V~	① — ③ ,	④ — ⑧ ,	⑥ — ⑤
AC 120 V~	① — ③ ,	⑦ — ⑧ ,	⑨ — ⑤
AC 220 V~	④ — ③ ,	⑨ — ⑧ ,	② — ⑤ NC
AC 240 V~	⑦ — ③ ,	⑨ — ⑧ ,	② — ⑤ NC

CS-3035 CIRCUIT DESCRIPTION

1. VERTICAL SECTION

The vertical section has two input channels and consists of an amp system for attenuation and amplification of the signals input to it, trig amp for feeding the signal to the horizontal section for use as the trig signal, and circuit for controlling these.

Attenuator Circuit

The signal applied to the input terminal is applied to the attenuator after passing through the input selection switch. The attenuator consists of 1/10 and 1/100 attenuators and a rotary switch for changing the amp gain in 1-2-5 steps. These 1/10 and 1/100 attenuators are adjusted to the required performance by a trimmer capacitor for square wave adjustment and a trimmer capacitor for input capacitance adjustment. The signal is not attenuated when VOLTS/DIV is set to the ranges from 5 mV to 50 mV. It is attenuated to 1/10 in the ranges from 0.1 V to 0.5 V, and attenuated to 1/100 in the ranges from 1 V to 5 V range.

Vertical Amplifier

The vertical amplifier amplifies the signal output from the attenuator, applies the required control, and applies the signal to the CRT deflecting plate.

The attenuator output is input to the preamp, and amp gain, variable, mag, pos, etc., control are performed there. The input buffer for the preamp is Q102, and forms an initial stage feedback amp by combining with Q101 and Q104. The emitters of Q101 and Q104 are connected, and thus, the operation of the feedback amp prevents any change in the base potential of Q101 and Q104. The gain corresponding to the 1-2-5 steps is adjusted by switching the resistor at the source of Q102. This output is fed to the base of Q105 and Q106. R119 located between the emitters of Q105 and Q106 adjusts the sensitivity of the amplifier. The signal output from these transistors is then split to R124 (VARIABLE) and to R125 and R128, and fed to the emitters of Q107 and Q108.

The circuits allows the collector resistance of Q107 and Q108 to be selected, and MAG operation is enabled by switching S103.

The signal to the trigger amp is supplied from the emitters of Q109 and Q110 in the next stage. The POSITION signal is added by this collector, and the channel is selected by the switching circuit formed from D104 and D106. Both D103 and D104 are double diodes with a common anode, and the cathode of one of the diodes is connected to the cathode of the other diode. The signal of the channel with the higher potential is fed to the output amp. Both channels are output in the ADD mode.

The output amp amplifies the signal from the preamp, and applies it to the deflecting plate of the CRT. The level of this signal is approximately 10 V/div. at the deflecting plate. To obtain this signal level, a feedback amp with high throughput using a floating emitter follower is used in the final stage.

Trigger Amplifier

As described above, the trigger amp amplifies the signal fed from the emitters of Q109 and Q110, passes it through the same diode switch used for V MODE switching, and feeds the trigger signal to the horizontal section. R149 adjusts the DC level of this signal. In the X-Y mode, this diode switch is set to the CH1 side, and the CH1 trigger signal becomes the X signal.

2. HORIZONTAL SECTION

The horizontal section consists of a trigger circuit section for generating the trigger pulse from the trigger signal, a sweep generator for generating the sweep signal and unblanking signal from this pulse, and a horizontal output amp for feeding the horizontal signal to the CRT.

Trigger Circuit

After the internal trigger signal fed from the V amp is input to the trigger amp, it is output as the trigger signal and X signal. These two signals have the opposite phase. The signals passes through a switch circuit for source, coupling, and slope switching, etc., and is input to the trigger Schmitt comparator. It is compared with the output of the TRIG LEVEL knob, and a trigger pulse is generated. The hysteresis of this circuit is generated by resistor R336 inserted between the collector of Q312 and base of Q311 and resistor R339 inserted between collector of Q311 and base of Q312. The collector of Q312 is used as a trigger pulse, and sweep starts from the rising edge of this pulse.

Sweep Generator

The sweep generator creates the sweep signal from the trigger pulse described above, and also generates a GATE signal synchronized to this sweep signal. The trigger pulse is input to IC301 and IC302. IC302 is a retriggerable one-shot multivibrator, and determines the presence of a trigger pulse within a set period for auto sweep in the AUTO mode. IC301 is a D-type flip-flop and the output changes at the rising edge of the pulse input to the clock input. This Q output is connected to the gate of a Miller circuit for sweep signal generation. This Miller circuit consisting of Q305, 325, and a time switch section, etc., cuts off D310 when the input goes to H. The output of the Miller circuit goes to the collector of Q325. The slope of the Miller circuit rising edge is determined by capacitors C310 to C312 and R348 to R355 selected by switch S304. In addition, VARIABLE changes the voltage applied to the above resistors to change the sweep speed.

The comparator circuit formed by Q306 and Q307 determines the sweep starting point. The circuit formed by Q303 and Q304 is for hold off. Q of IC301 is used as the gate signal for unblanking.

CS-3035 CIRCUIT DESCRIPTION

Output Amplifier

The X signal or sweep signal is selected and input to the horizontal output amp. The amp amplifies this signal to form the differential signal applied to the horizontal deflecting plate of the CRT. The sweep signal and X signal are input to Pins 1 and 8 of IC303, selected by the analog switch, and input to the base of Q313. The signal is then combined with the position signal and converted to the differential signal. The signal is then amplified by transistors Q315 and Q316 in the NORM mode, and by transistors Q317 and Q318 in the MAG mode. The final stage is a feedback amp using a push-pull amplifier for high frequencies.

3. POWER & AXIS AMPLIFIER SECTION

The power-Z section includes a power supply section for generating the DC voltage needed for the circuits, high voltage section for generating the high voltage needed for the CRT, and a Z amp for creating the unblanking signal.

Power Supply

The power supply section creates the DC voltage needed for the circuit from the secondary output of the power transformer, and also performs power exchange with the optionally attached BP-70 DC Power Supply. All of the regulators are series regulators, and power of +240 V, +100 V, +12 V, −12 V, and +5 V are produced. +240 V power is used mainly for the horizontal output amp. +100 V is used mainly as the power supply for the vertical output amp. The unregulated +22 V voltage is used for high voltage. Although the CS-3035 has no AC power supply and can operate when combined with the BP-70, the same +22 V power used for high voltage is used for charging the internal batteries of the BP-70, and high voltage oscillation is stopped during charging to prevent excessive load.

High Voltage

The high voltage section produces the −1800 V high voltage applied to the CRT from the +22 V unregulated power supplied from the power supply section. The main section is the DC-DC convertor formed around T701, and the high voltage rectification section uses a P-P rectification circuit to reduce the load on the transformer. The high voltage level is stabilized by detecting the cathode of the CRT and controlling the DC drive voltage for converter oscillation. In addition, as described above, the base of Q707 is set to 0 during BP-70 recharging to stop oscillation.

Z Axis Amplifier & Unblanking

The Z-amp amplifies the gate signal created by the sweep generator and the chop blk signal generated by the vertical switching signal generator. The above signals and INTEN level are input to the emitter of Q704. The signal is applied to the high voltage circuit after amplification by the push-pull amp similar to that in the final stage of the horizontal stage. At this time, the signal passes through C716 after the AC component has been chopped by C703 and the DC component by Q714, and is then rectified by D711 and D712.

Trace Rotation

Trace rotation is an emitter matching driver for driving L701.

Calibrator

The CAL of CS-3035 uses NE555 for oscillation.

BP-70 CIRCUIT DESCRIPTION

Converter

The converter includes a DC-DC converter using power FETs, a switch signal generator for switching the converter, and a charge circuit for charging the battery.

DC-DC Converter

The DC-DC converter section creates the DC voltage needed for the oscilloscope circuits from the 12 V DC battery power. The primary stage is the oscillation output of the switch signal generator, and the Q1 and Q2 power FETs are switched ON alternately. Capacitors and resistors are connected in series between the drain of Q1 and gate of Q2 and the drain of Q2 and the gate of Q1. This creates a positive feedback loop with the transistors and improves switching efficiency.

Switch Generator

This section generates the oscillation waveforms for switching the power FETs in the DC-DC converter described above.

When this unit is operating from 100 VAC, Pins 1 and 2 of IC2 are at the high level, and oscillation is stopped.

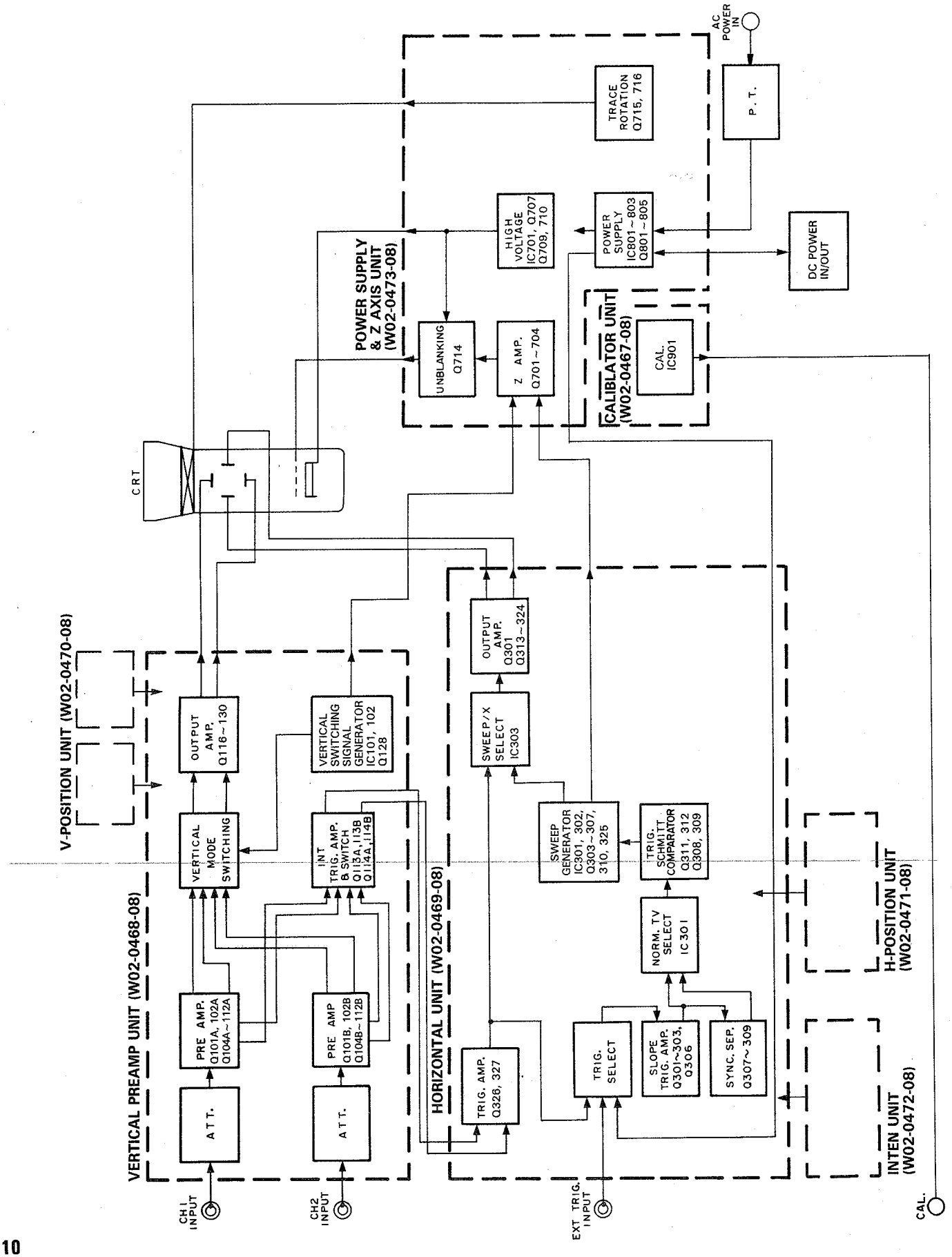
Charge Circuit

This is a circuit for charging the internal battery. It is a constant current using the forward drop voltage of the D3 LED.

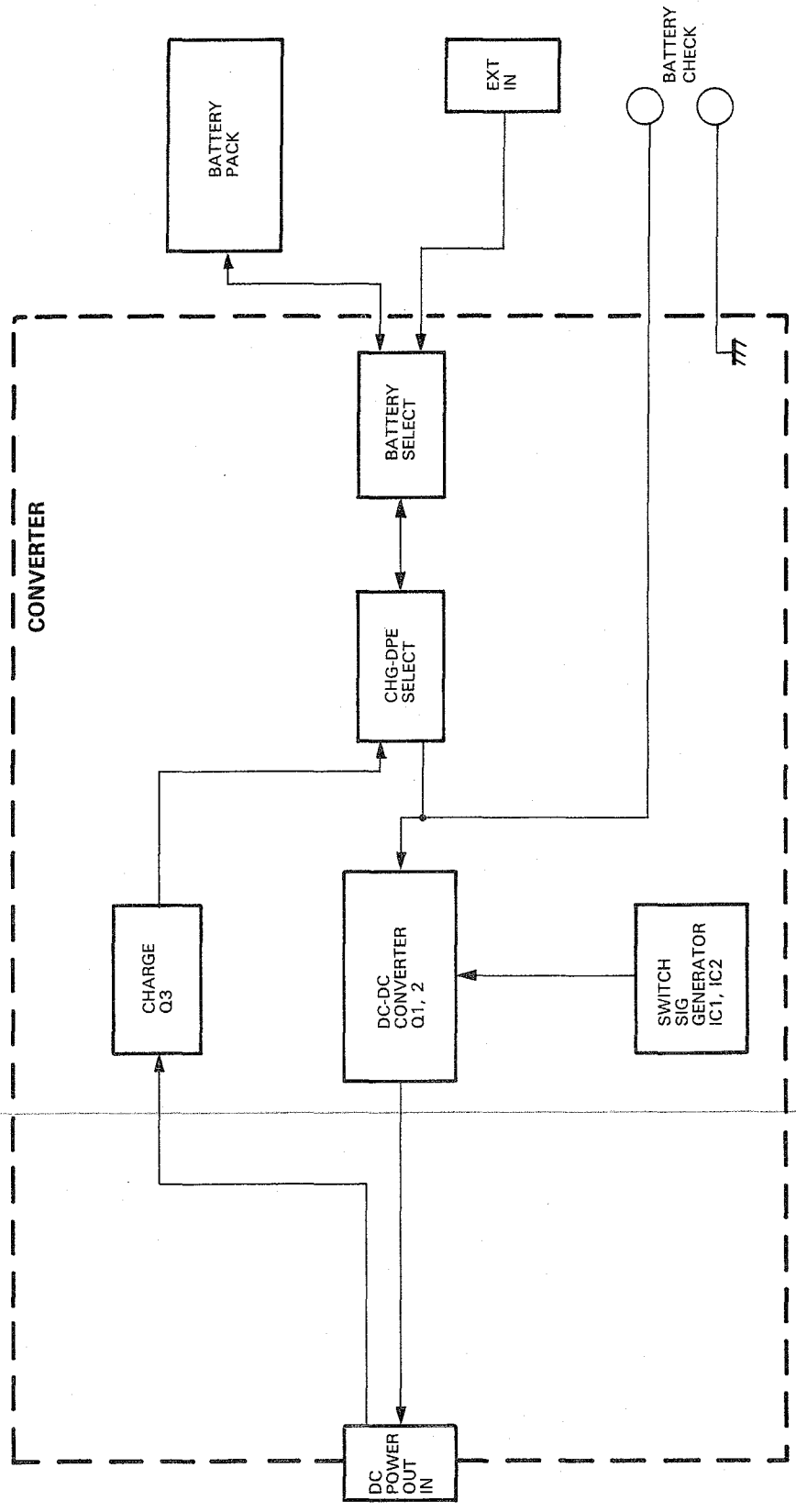
Battery

The BP-70 is capable of operation from external batteries and also has a built-in 12 V × 4000 mAH battery. Operation for two hours is possible when this battery is fully charged. The battery consists of 10 ni-cad cells connected in series.

CS-3035 BLOCK DAIGRAM



BP-70 BLOCK DIAGRAM



ADJUSTMENT

To obtain the best performance, periodically calibrate the unit. Sometimes, only one mode need be calibrated, while at other times, all modes should be calibrated. When one mode is calibrated, it must be noted that the other modes may be affected. When calibrating all modes, perform the calibration in the specified sequence.
The following calibration required an accurate measuring instrument and an insulated adjusting flat blade screwdriver. If they are not available, contact your dealer. For optimum adjustment, turn the power on and warm up the scope sufficiently (more than 30 minutes) before starting.
Before calibrating the scope, check the power supply voltage.

TEST EQUIPMENT REQUIRED

The following instrument or their equivalent should be used for making adjustment.

Test Equipment	Model	Minimum Specification
Digital Multi-Meter	DL-706 (KENWOOD)	Impedance: More than 10 MΩ, Measuring range: 0.01 V to 199 V
Sine-Wave Generator	651 B (YHP)	Frequency: 10 Hz to 10 MHz, constant voltage over tuning range
Sine-Wave Generator	SG-503 (Tektronix)	Frequency: 50 kHz to 100 MHz, Output impedance: 50 Ω, constant voltage over tuning range.
Square-Wave Generator	PG-506 (Tektronix)	Output signal: 1 kHz, Amplitude: 10 mVp-p to 10 Vp-p, Accuracy: within ±1%, Rise time: 35 ns or less 100 kHz, Rise time: 1 ns or less
Q Meter	4343B (YHP)	—
Color Pattern Generator	CG-911A (KENWOOD)	—
Oscilloscope	CS-6010 (KENWOOD)	Sensitivity: more than 5 mV Frequency response: More than 100 MHz
Time-Marker Generator	TG-501 (Tektronix)	Time mark: 0.5 s to 0.1μs repetive waveform
High-Voltage Probe	—	Input Impedance: 1000 MΩ
Termination	—	Impedance: 50 Ω Accuracy: within 3%
Termination	—	3 watts type impedance: 50 Ω
Attenuator	—	−20 dB attenuation (50 Ω)

Table 1

PREPARATION FOR ADJUSTMENT

Control Settings

The control settings listed below must be used for each adjustment procedure.
Exceptions to these settings will be noted as they occur. After completing a adjustment, return the controls to the following settings.

NAME OF KNOBS	POSITION
INTENSITY	12 o'clock
FOCUS	Mechanical Center
CH1, CH2, ▲▼ POSITION, PULL×5 MAG	Mechanical center, push
CH1, CH2, VOLTS/DIV	10 mV/DIV
CH1, CH2, VARIABLE	CAL
CH1, CH2, AC-GND-DC	GND
MODE	CH1
TRIG	CH1
CH2 INV	NORM
◄► POSITION, PULL×5 MAG	Mechanical center, push
SWEEP TIME/DIV	1ms
SWEEP VARIABLE	CAL
TRIG. LEVEL	Mechanical Center, Push
MODE	AUTO
COUPLING	AC
SOURCE	INT

Table 2

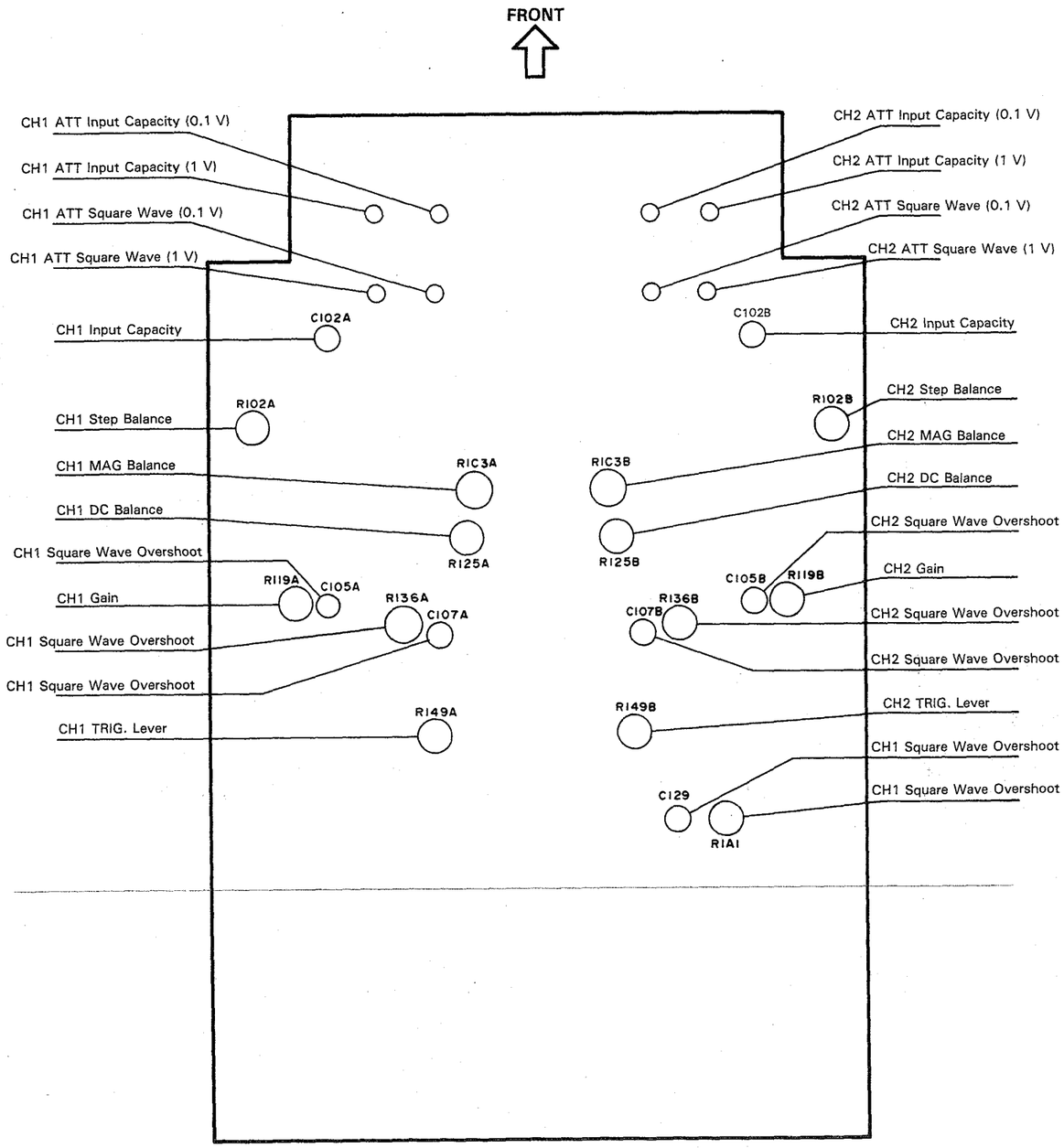
ADJUSTMENT

Item	Adjustment R (C)	P.C.B.	Setting	Procedure
1. POWER SUPPLY & CRT SECTION ADJUSTMENT				
INTENSITY	R743	W02-0473-08	SWEEP TIME/DIV; X-Y AC-GND-DC; GND	Adjust the luminescent spot erase control between 11-o'clock position and 13-o'clock position.
FOCUS	R738	W02-0473-08	SWEEP TIME/DIV; X-Y AC-GND-DC; GND	Adjust the FOCUS control between 9-o'clock position and 15-o'clock position so that the spot is rounded with the luminescent spot just focused.
ASTIG	R715	W02-0473-08	SWEEP TIME/DIV; X-Y AC-GND-DC; GND	
TRACE ROTATION		W02-0467-08	AC-GND-DC; GND	Adjust so that the luminescent line goes parallel with the horizontal line of the scale.
2. VERTICAL SECTION ADJUSTMENTS				
CH1 STEP BAL	R102A	W02-0468-08	AC-GND-DC; GND VOLTS/DIV; 5 mV	Adjust so that the position of the luminescent line does not change even when the VOLTS/DIV control is rotated.
CH1 DC BAL	R125A	W02-0468-08	AC-GND-DC; GND VOLTS/DIV; 5 mV	Adjust so that the position of the luminescent line does not change even when the VARIABLE control is rotated.
CH1 MAG BAL	R103A	W02-0468-08	AC-GND-DC; GND VOLTS/DIV; 5 mV	Adjust so that the position of the luminescent lines does not change even with the ×5 MAG knob is set to "PULL".
CH1 GAIN	R119A	W02-0468-08	VOLTS/DIV; 5 mV	Input a square wave of 1 kHz, 20 mVp-p and adjust so that its amplitude is of 4 divisions.
CH2 STEP BAL	R102B	W02-0468-08	AC-GND-DC; GND VOLTS/DIV; 5 mV	Adjust so that the position of the luminescent line does not change even when the VOLTS/DIV control is rotated.
CH2 DC BAL	R125B	W02-0468-08	AC-GND-DC; GND VOLTS/DIV; 5 mV	Adjust so that the position of the luminescent line does not change even when the VARIABLE control is rotated.
CH2 MAG BAL	R1C3B	W02-0468-08	AC-GND-DC; GND VOLTS/DIV; 5 mV	Adjust so that the position of the luminescent line does not change even when the ×5 MAG knob is set to "PULL".
CH2 GAIN	R119B	W02-0468-08	VOLTS/DIV; 5 mV	Input a square wave of 1 kHz, 20 mVp-p and adjust so that its amplitude is of 4 divisions.
CH1 Input Capacity	C102A	W02-0468-08	VOLTS/DIV; 10 mV	Adjust the input capacity to 39 pF ±1 pF.
CH1 Square Wave Overshoot	C105A C107A R136A C129 R1A1	W02-0468-08	VOLTS/DIV; 10 mV	
CH1 ATT Input Capacity		W02-0468-08	VOLTS/DIV; 0.1 V ; 1 V	Adjust the input capacity to 39 pF ±1 pF.
CH1 ATT Square Wave		W02-0468-08	VOLTS/DIV; 0.1 V ; 1 V	Input a square wave of 1 kHz, 5 divisions and adjust so that its waveform is flat.
CH2 Input Capacity	C102B	W02-0468-08	VOLTS/DIV; 10 mV	Adjust the input capacity to 39 pF ±1 pF.

ADJUSTMENT

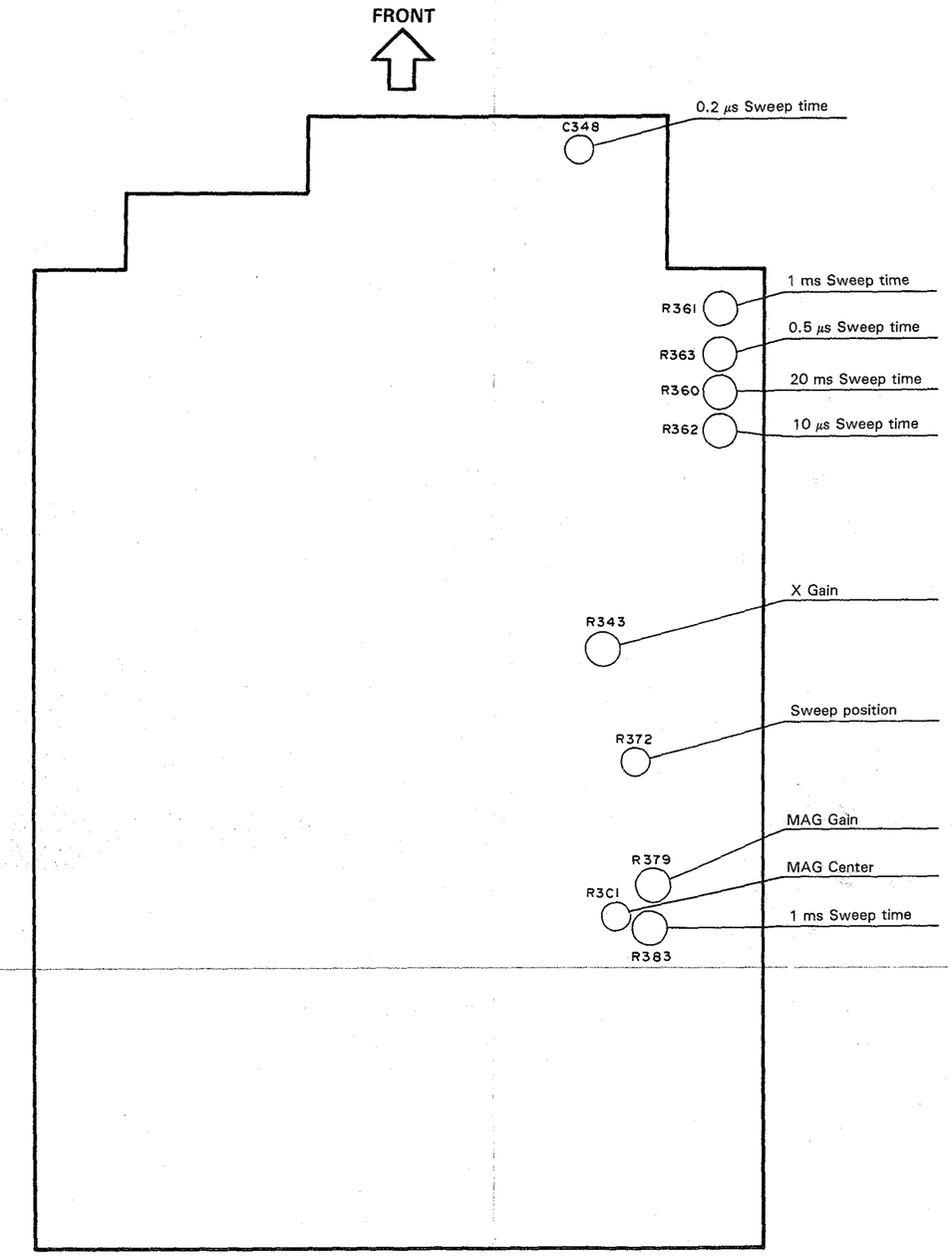
Item	Adjustment R (C)	P.C.B.	Setting	Procedure
CH2 Square Wave Overshoot	C105B C107B R136B	W02-0468-08	VOLTS/DIV; 10 mV	
CH2 ATT Input Capacity		W02-0468-08	VOLTS/DIV; 0.1 V ; 1 V	Adjust the input capacity to 39 pF ±1 pF.
CH2 ATT Square Wave		W02-0468-08	VOLTS/DIV; 0.1 V ; 1 V	Input a square wave of 1 kHz, 5 divisions and adjust so that its waveform is flat.
3. HORIZONTAL SECTION ADJUSTMENTS				
1 ms SWEEP TIME	R361 R383	W02-0469-08	SWEEP TIME/DIV; 1 ms	Adjust R361 so that the sweep length is of 11 waves for 1 ms marker. After that, adjust R383 so that the top of each wave is put on a graduation of the scale.
SWEEP Start point	R372	W02-0469-08	SWEEP TIME/DIV; 1 ms	Adjust so that with R372 set to the mechanical center position the start of the sweep is put on the left end of the scale.
MAG GAIN	R379	W02-0469-08	SWEEP TIME/DIV; 1 ms ×5 MAG; PULL	Adjust so that with an input of 1 ms marker signal its amplitude is of 5 divisions.
MAG Center	R3C1	W02-0469-08	SWEEP TIME/DIV; 1 ms ×5 MAG; PULL	Set the left end of the 1 ms marker signal to the center of the scale, then adjust so that with the setting of "×5 MAG" the left end comes to the center of the scale.
20 ms SWEEP TIME	R360	W02-0469-08	SWEEP TIME/DIV; 20 ms	Adjust so that 20 ms marker signal is put on each graduation of the scale.
10 μs SWEEP TIME	R362	W02-0469-08	SWEEP TIME/DIV; 10 μs	Adjust so that 10 μs maker signal is put on each graduation of the scale.
0.5 μs SWEEP TIME	R363	W02-0469-08	SWEEP TIME/DIV; 0.5 μs	Adjust so that 0.5 μs marker signal is put on each graduation of the scale.
0.2 μs SWEEP TIME	C348	W02-0469-08	SWEEP TIME/DIV; 0.2 μs	Adjust so that 0.2 μs maker signal is put on each graduation of the scale.
CH1 TRIG LEVEL	R149A	W02-0468-08		Adjust so that with a 1 1 kHz sinewave input of 4 divisions the trigger point does not change even when selection is made between trigger coupling AC and DC.
CH2 TRIG LEVEL	R149B	W02-0468-08		Adjust so that with a 1 kHz sinewave input of 4 divisions the trigger point does not change even when selection is made between trigger coupling AC and DC.
X-GAIN	R343	W02-0468-08	SWEEP TIME/DIV; X-Y CH1 VOLTS/DIV; 10 mV	Adjust so that with a 1 kHz square wave input of 50 mV its amplitude is of 5 divisions.
4. CAL ADJUSTMENT				
CAL Voltage Frequency	R906 R909	W02-0467-08		Adjust R906 so that the voltage at the CAL pin is 0.25 V ±2%. Adjust R909 so that its frequency is 1 kHz ±2%.

VERTICAL PREAMP UNIT (W02-0468-08)

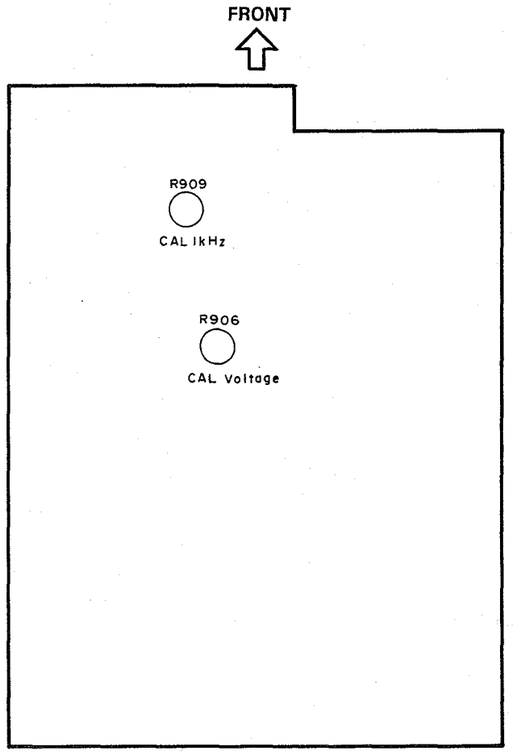


ADJUSTMENT

HORIZONTAL UNIT (W02-0469-08)

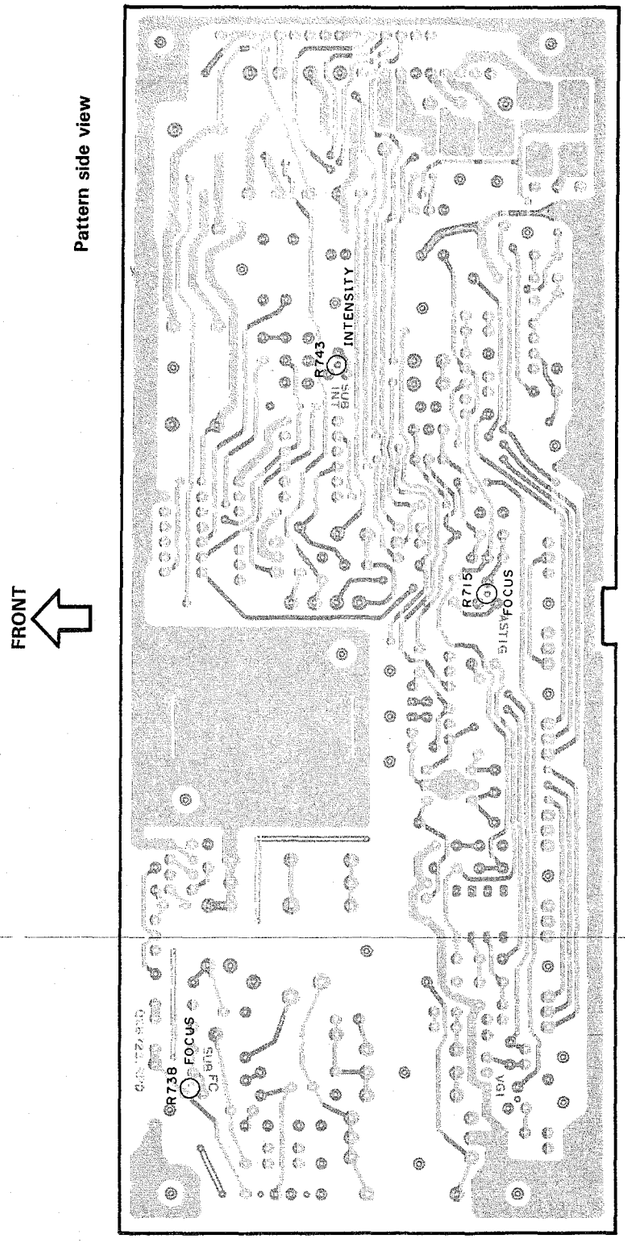


CALIBRATOR UNIT (W02-0467-08)

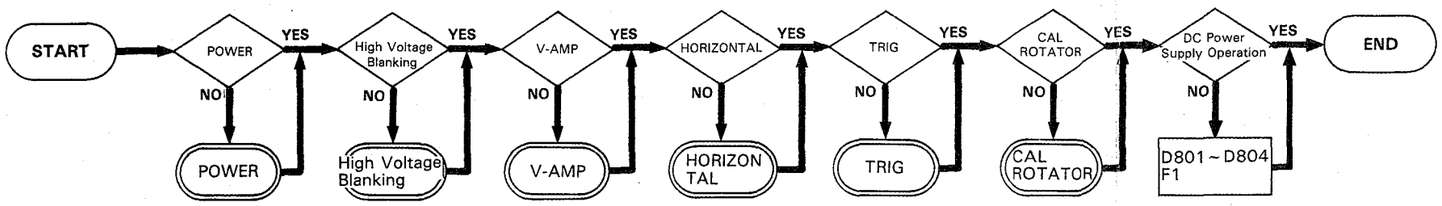


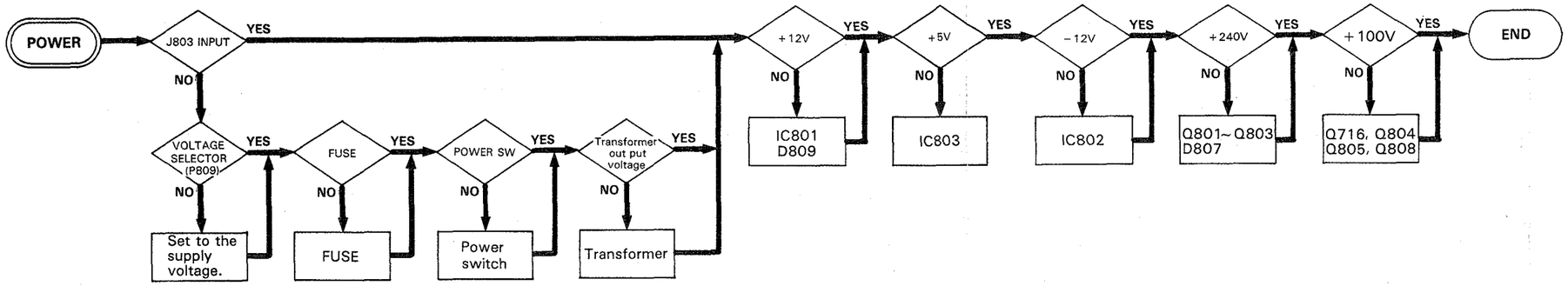
ADJUSTMENT

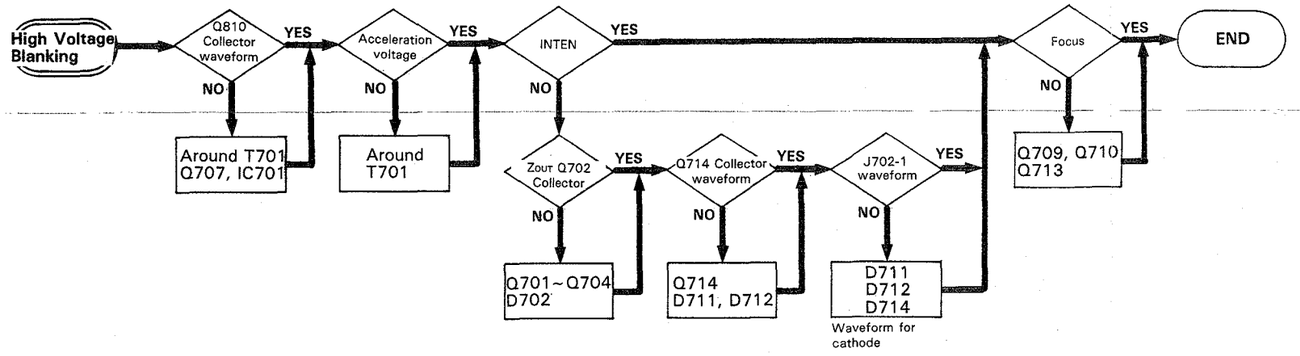
POWER SUPPLY & Z AXIS UNIT (W02-0473-08)



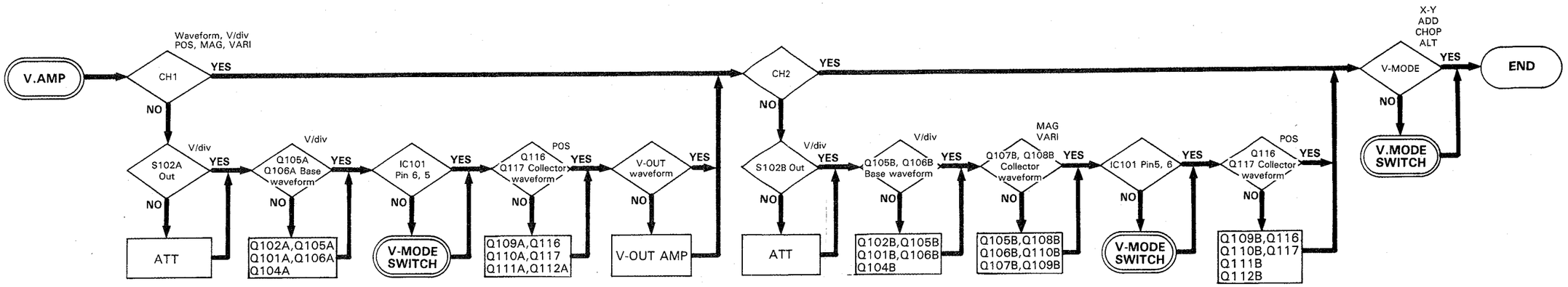
TROUBLESHOOTING

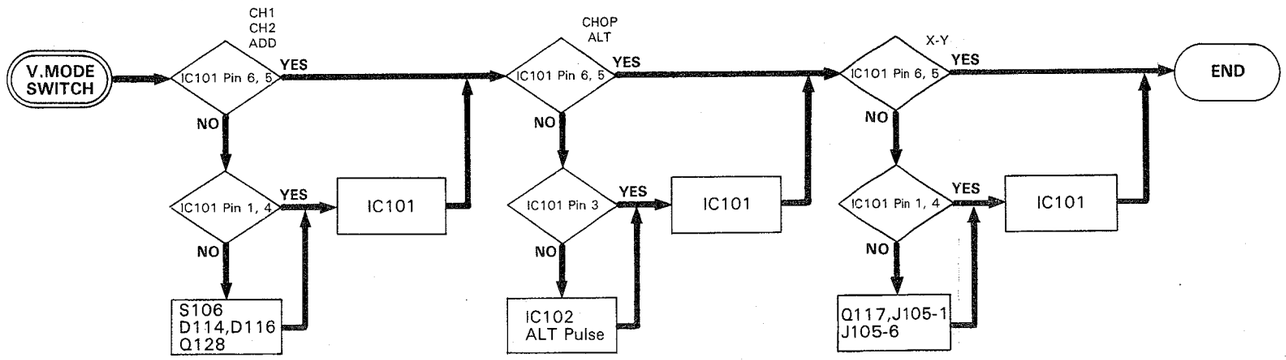


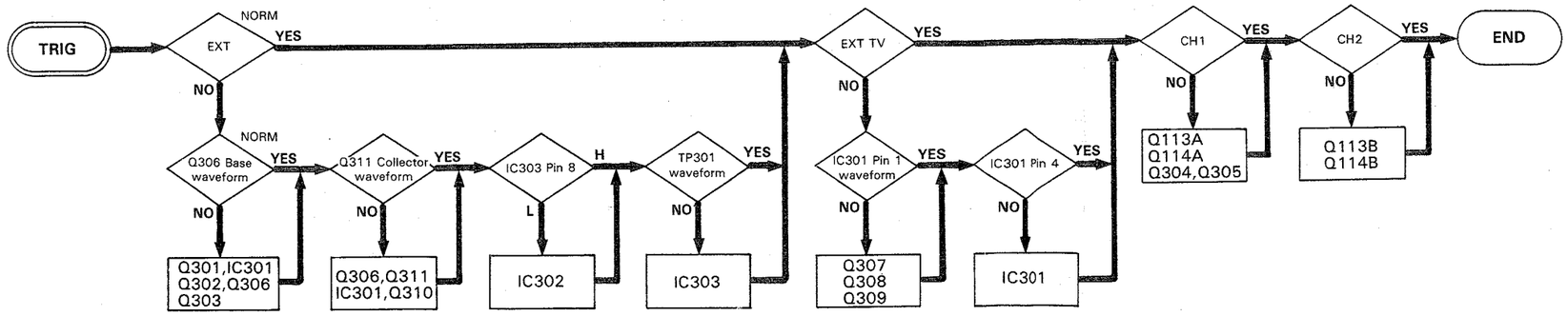




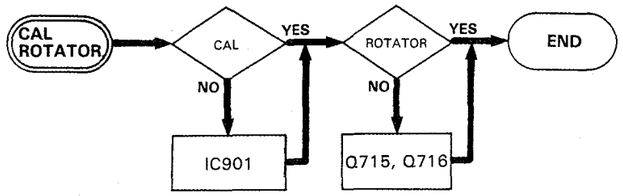
TROUBLESHOOTING

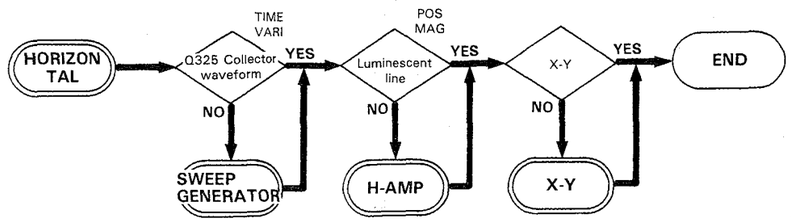


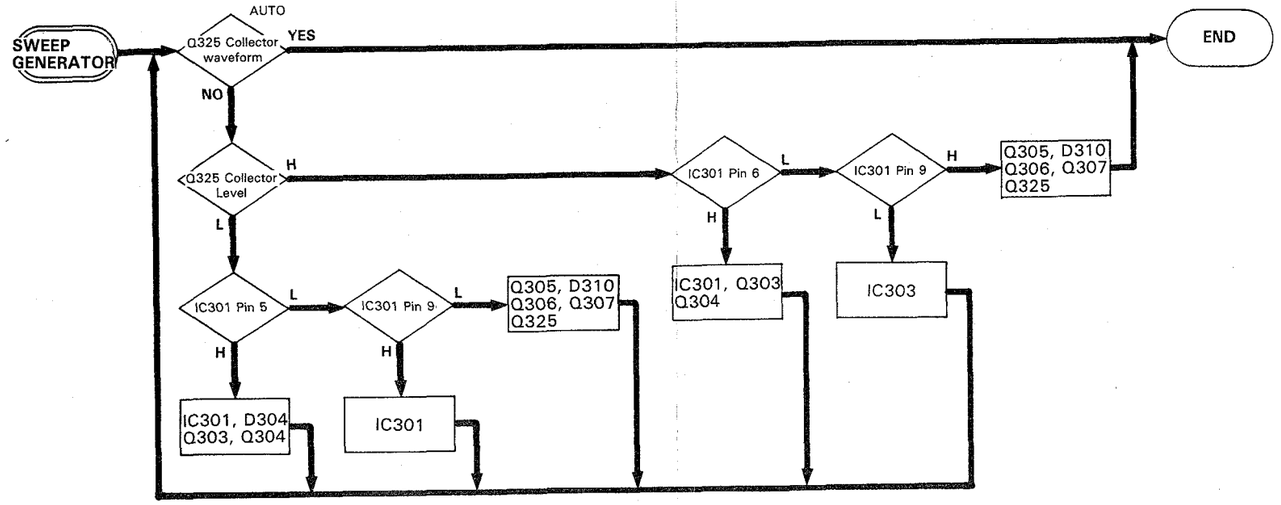


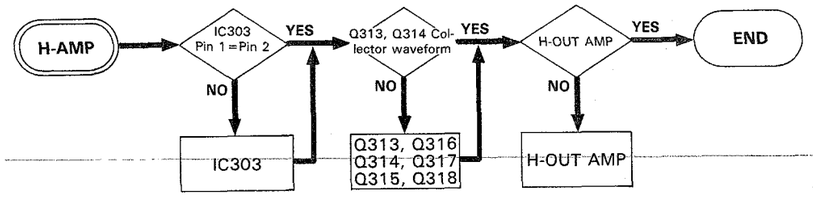


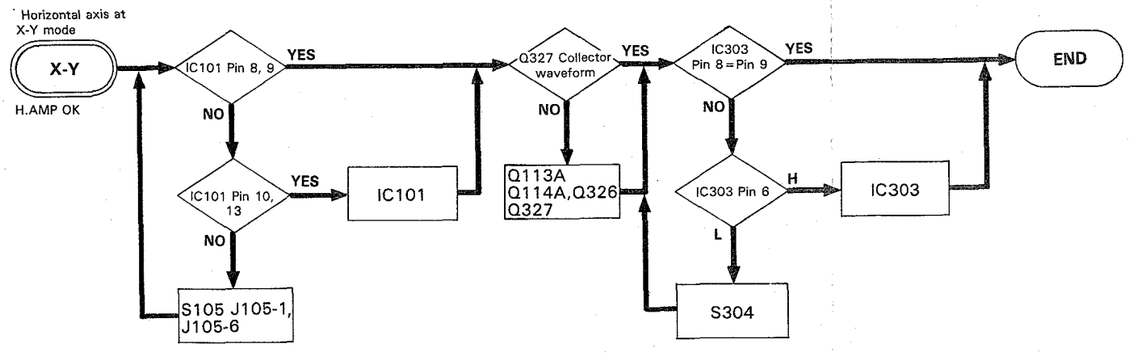
TROUBLESHOOTING











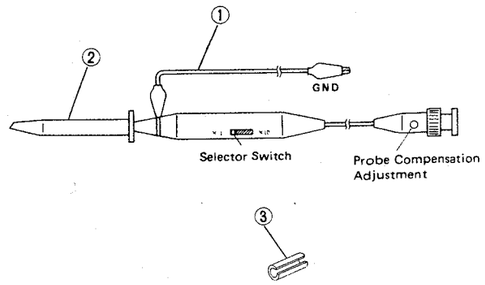
PARTS LIST

CS-3035 UNIT

Y70-1650-00

REF.NO	PARTS NO	NAME & DESCRIPTION
	B50-7680-00	INSTRUCTION MANUAL,JAPANESE
	B50-7681-00	INSTRUCTION MANUAL,ENGLISH
	E01-0108-08	CRT SOCKET
	E30-1644-15	BS POWER CORD
	E30-1818-05	JIS POWER CORD
	E30-1819-05	CEE POWER CORD
	E30-1820-05	UL/CSA POWER CORD
	E30-1821-05	SAA POWER CORD
	E31-5605-08	WIRE ASS'Y(J305-306,J304-307)
	E31-5606-08	WIRE ASS'Y(J805-J906)
	E31-5607-08	WIRE ASS'Y(J105-J303)
	E31-5608-08	WIRE ASS'Y(J108-J107)
	E31-5609-08	WIRE ASS'Y(J109-314,J807-309)
	E31-5610-08	WIRE ASS'Y(J808-J910)
	E31-5611-08	WIRE ASS'Y(J903-POWER LED)
	E31-5612-08	WIRE ASS'Y(J315-READY LED)
	E31-5613-08	WIRE ASS'Y(J106-J806)
	E31-5614-08	WIRE ASS'Y(J308-J804)
	E31-5615-08	WIRE ASS'Y(J801-J802)
	F05-3011-05	FUSE(6X30MM) 0.3A
	F05-3019-08	FUSE(5X20MM) 0.3A
	F05-5013-05	FUSE(6X30MM) 0.5A
	H01-5898-08	CARTON BOX
	H12-0577-08	PAD,TOP
	H12-0578-08	PAD,BOTTOM
	H12-0579-08	PAD,PLATE
	H20-1730-08	VINYL COVER
	W03-2308-05	PROBE (PC-30)
P809	F09-0518-08	CAP
P809A	E23-0569-08	CONNECTOR PIN WITH WIRE
1	A01-1206-08	CASE,TOP
2	A01-1207-08	CASE,BOTTOM
3	A20-2835-08	MOLDED PANEL
4	A21-1144-08	DECORATIVE PANEL
5	A21-1145-08	DECORATIVE PANEL
6	A22-0875-08	SUB PANEL
7	A23-1691-08	REAR PANEL
8	A23-1694-08	REAR PANEL
9	A50-0512-08	FRAME,RIGHT
10	A50-0513-08	FRAME,LEFT
11	B07-0719-08	ESCUTCHEON
12	B11-0508-08	FILTER
13	B30-0967-08	LED
14	B40-2920-08	PANEL
15	B40-2922-08	NAME PLATE,MODEL NO.
16	D21-0921-08	EXTENTION SHAFT
17	D21-0922-08	EXTENTION SHAFT
18	D22-0505-08	COUPLING
19	D22-0506-08	COUPLING
20	E01-0107-08	CRT SOCKET
21	E04-0259-05	BNC RECEPTACLE
22	E18-0351-05	AC INLET 3 P
23	E21-0668-08	CAL TERMINAL
24	F07-0953-08	COVER
25	F10-1609-08	FRAME,CENTER
26	F11-1219-08	SHIELD CASE
27	F11-1220-08	SHIELD CASE
28	F19-0716-08	SHIELD PLATE
29	F19-0717-08	BLIND PLATE
30	F20-0678-08	ADHESIVE TAPE
31	F20-0680-08	INSULATED SHEET
32	G13-0726-08	CUSHION
33	G13-0727-08	CUSHION
34	J02-0522-08	RUBBER FOOT
35A	J13-0508-08	FUSE HOLDER,FOR 6X30MM FUSE
35B	J13-0509-08	FUSE HOLDER,FOR 5X20MM FUSE
36	J21-4641-08	BRACKET
37	J21-4643-08	BRACKET:CRT
38	J21-4644-08	BRACKET:CRT
39	J21-4645-08	HANDLE STEPPER
40	J21-4647-08	BRACKET
41	J21-4648-08	BRACKET
43	K01-0530-08	HANDLE
44	K21-0900-08	KNOB:SWEEP VARI
45	K21-0901-08	KNOB:SWEEP TIME/DIV
46	K21-0902-08	KNOB:POSITION,TRIG.LEVEL
47	K21-0903-08	KNOB:INTEN,VOLTS VARI
48	K21-0904-08	KNOB:VOLTS/DIV
49	K21-0905-08	KNOB:V OR Y MODE
50	K27-0544-08	KNOB:POWER
51	K27-0545-08	PUSH BUTTON
52	L01-9836-08	POWER TRANSFORMER
53	L39-0529-08	ROTATOR COIL(REF NO.L801)
54	N09-0763-08	SCREW
55	W01-0503-04	REAR RUBBER FOOT/CORD WRAP
56	W02-0467-08	CALIBRATOR UNIT
57	W02-0468-08	VERTICAL UNIT
58	W02-0469-08	HORIZONTAL UNIT
59	W02-0470-08	V-POSITION UNIT
60	W02-0471-08	H-POSITION UNIT
61	W02-0472-08	INTEN UNIT
62	W02-0473-08	POWER SUPPLY & Z AXIS UNIT
63	952TM31	CRT

MODEL PC-30 (LOW CAPACITY PROBE)

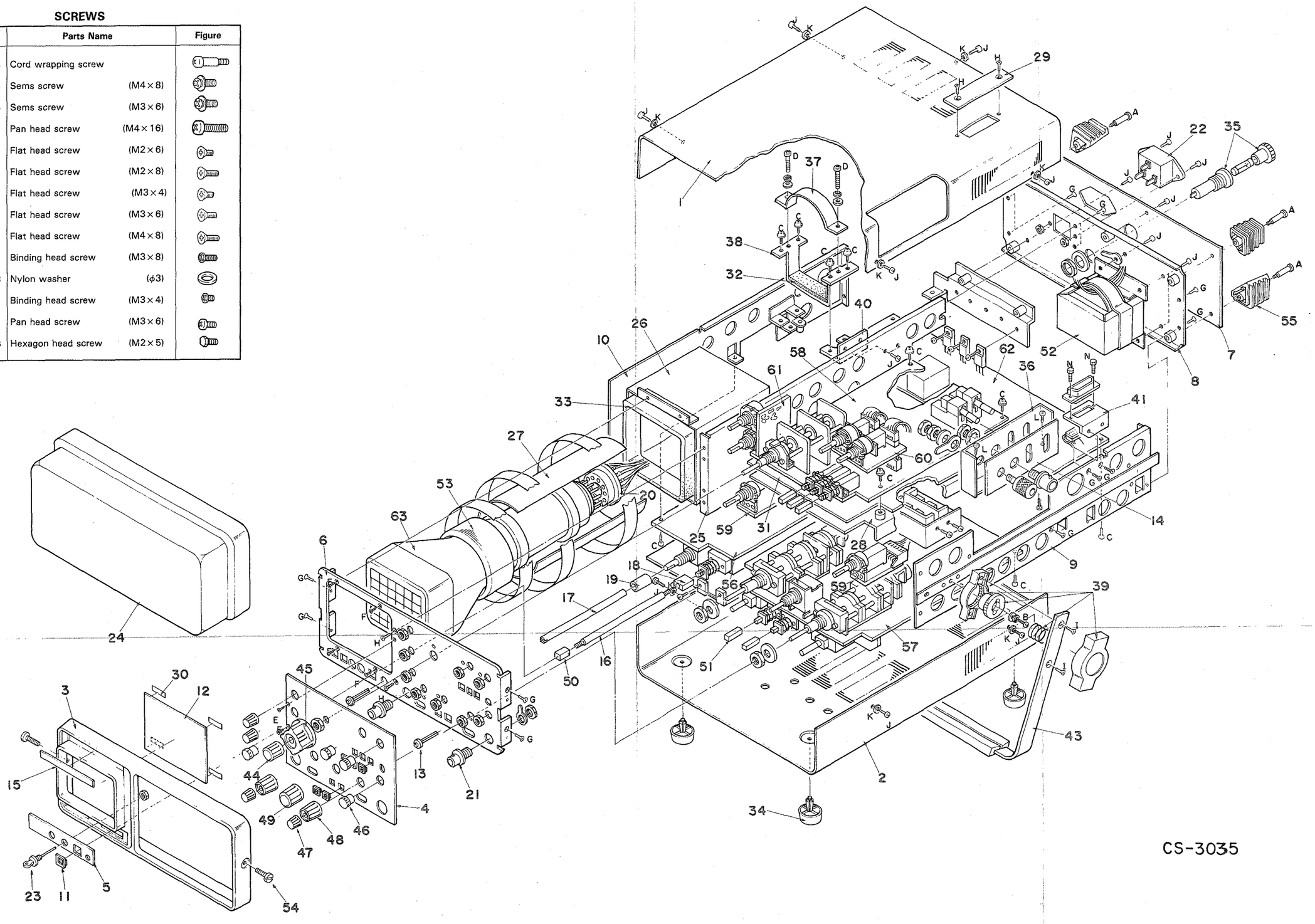


ITEM	DESCRIPTION	PARTS NO.
①	Ground Wire Assembly	E30-1883-08
②	Retractable Hook Tip	E29-0540-08
③	Marker (Orange)	B42-1950-08

CS-3035 DISASSEMBLY

SCREWS

	Parts No.	Parts Name		Figure
A	N08-0611-04	Cord wrapping screw		
B	N09-0654-05	Sems screw	(M4×8)	
C	N09-0718-05	Sems screw	(M3×6)	
D	N30-4016-61	Pan head screw	(M4×16)	
E	N32-2006-61	Flat head screw	(M2×6)	
F	N32-2008-61	Flat head screw	(M2×8)	
G	N32-3004-61	Flat head screw	(M3×4)	
H	N32-3006-61	Flat head screw	(M3×6)	
I	N32-4008-61	Flat head screw	(M4×8)	
J	N35-3008-61	Binding head screw	(M3×8)	
K	N19-0733-08	Nylon washer	(ϕ3)	
L	N35-3004-61	Binding head screw	(M3×4)	
M	N30-3006-61	Pan head screw	(M3×6)	
N	N09-0775-08	Hexagon head screw	(M2×5)	



CS-3035

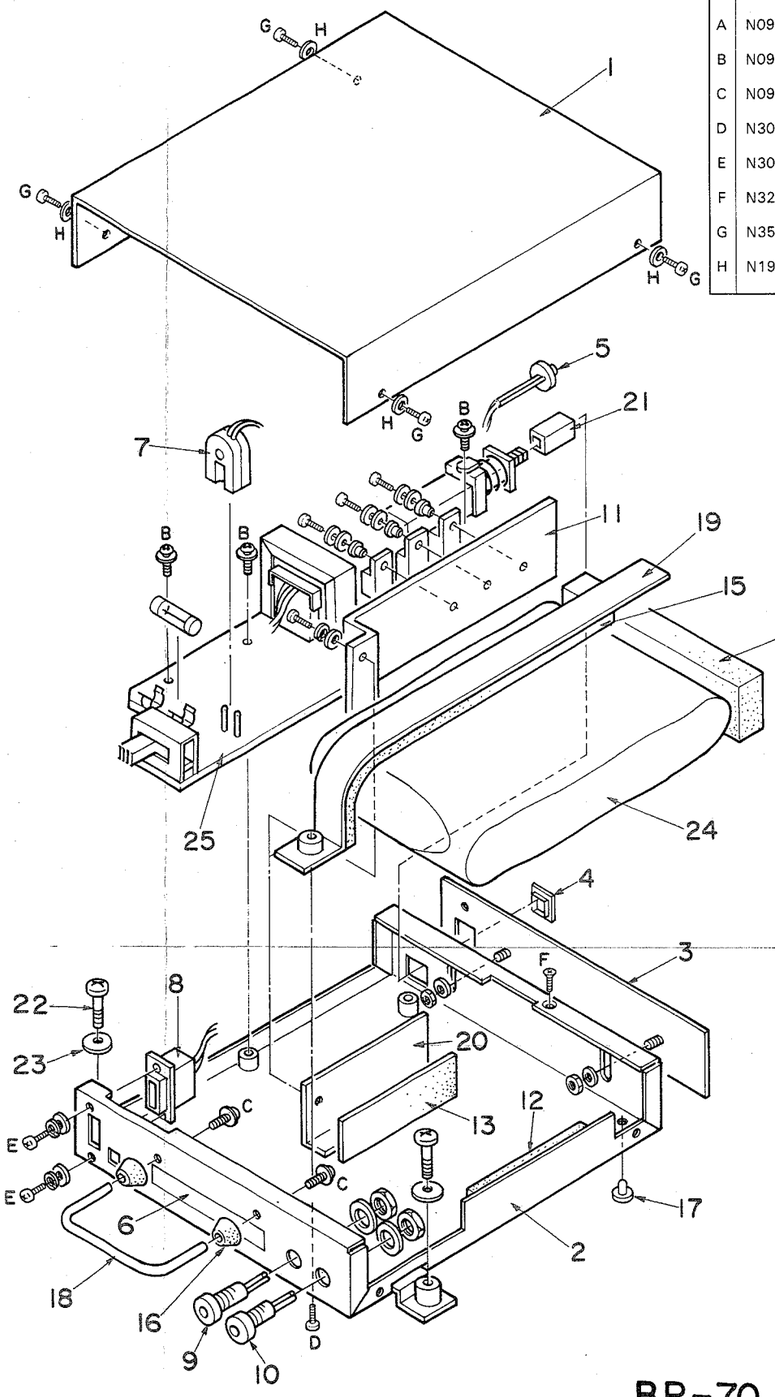
PARTS LIST

BP-70 UNIT

Y87-2440-00

REF.NO	PARTS NO	NAME & DESCRIPTION
	B42-1933-04	LABEL,MODEL NO.,FOR CARTON BOX
	B42-3618-04	LABEL,CARE MARK,FOR CARTON BOX
	B50-7684-00	INSTRUCTION MANUAL,ENG./JAP.
	E31-5616-08	WIRE ASS'Y(J4)
	E31-5617-08	WIRE ASS'Y(J3)
	F09-0517-08	DUST CAP
	H01-5903-08	CARTON BOX
	H12-0580-08	PAD,TOP AND BOTTOM
1	A10-1210-08	CASE,TOP
2	A10-1453-08	CASE,BOTTOM
3	A21-1149-08	DECORATIVE PANEL
4	B07-0719-08	ESCUTCHEON
5	B30-0967-08	LED
6	B42-3621-08	NAME PLATE,SIRIAL NO.
7	E03-0209-08	CONNECTOR
8	E03-0210-08	CONNECTOR
9	E13-0173-08	JACK,BLACK
10	E13-0174-08	JACK,RED
11	F01-0871-08	HEAT SINK
12	G13-0728-08	CUSHION
13	G13-0729-08	CUSHION
14	G13-0730-08	CUSHION
15	G13-0731-08	CUSHION
16	G13-0732-08	CUSHION,RUBBER
17	J02-0523-08	FOOT,RUBBER
18	J09-0507-08	FOOT
19	J21-4649-08	BRACKET
20	J21-4658-08	BRACKET
21	K27-0545-08	PUSH BUTTON
22	N09-0769-08	SCREW
23	N19-0734-08	WASHER,NYLON
24	W02-0461-08	BATTERY PACK
25	W02-0462-08	CONVERTER UNIT

BP-70 DISASSEMBLY



BP-70

SCREWS

	Parts No.	Parts Name		Figure
A	N09-0718-05	Sems screw	(M3×6)	
B	N09-0624-04	Sems screw	(M3×8)	
C	N09-0731-05	Sems screw	(M3×12)	
D	N30-3004-61	Pan head screw	(M3×4)	
E	N30-2606-61	Pan head screw	(M2.6×6)	
F	N32-3004-61	Flat head screw	(M3×4)	
G	N35-3008-61	Binding head screw	(M3×8)	
H	N19-0733-08	Nylon washer	(φ3)	

PARTS LIST

CS-3035 CALIBRATION UNIT

W02-0467-08

REF.NO	PARTS NO	NAME & DESCRIPTION			
	J25-3522-08	PCB (UNMOUNTED)			
C901	C90-0992-08	CAP. ELECTRO	100	20%	35V
C902	CF92V1H102K	CAP. POLYESTER	1000P	10%	50%
C903	CF92V1H103K	CAP. POLYESTER	0.01	10%	50V
C904	CF92V1H103K	CAP. POLYESTER	0.01	10%	50V
C914	C90-0991-08	CAP. ELECTRO	33	20%	16V
C915	C90-0991-08	CAP. ELECTRO	33	20%	16V
D902	1S1587	DIODE			
IC901	NE555P	IC. TIMMER			
J902	E23-0571-08	PIN TERMINAL			
J903	E40-7045-08	PIN CONNECTOR	3 P		
J906	E40-7047-08	PIN CONNECTOR	6 P		
J910	E40-7045-08	PIN CONNECTOR	3 P		
R901	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R902	RD14BB2E332J	RES. CARBON	3.3K	5%	1/4W
R903	RD14BB2E103J	RES. CARBON	10K	5%	1/4W
R904	RD14BB2E562J	RES. CARBON	5.6K	5%	1/4W
R905	RD14BB2E242J	RES. CARBON	2.4K	5%	1/4W
R906	R12-3557-08	RES. SEMI FIXED	10KB		
R907	RD14BB2E202J	RES. CARBON	2K	5%	1/4W
R908	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R909	R12-5405-05	RES. SEMI FIXED	100K		
R930	R05-3519-08	V.R.			
R936	RD14BB2E272J	RES. CARBON	2.7K	5%	1/4W
R946	RD14BB2E103J	RES. CARBON	10K	5%	1/4W
R947	RD14BB2E272J	RES. CARBON	2.7K	5%	1/4W
S801	S40-1517-08	SWITCH			

CS-3035 VERTICAL PREAMP UNIT

W02-0468-08

REF.NO	PARTS NO	NAME & DESCRIPTION			
	F01-0872-08	HEAT SINK			
	F10-1612-08	SHIELD PLATE			
	F10-1613-08	SHIELD PLATE			
	F20-0682-08	SPACER(Q1,Q2)			
	J25-5323-08	PCB (UNMOUNTED)			
C101A	C91-1289-08	CAP. POLYESTER	0.047	10%	400V
C101B	C91-1289-08	CAP. POLYESTER	0.047	10%	400V
C102A	C05-0031-15	CAP. TRIMMER	10P		
C102B	C05-0031-15	CAP. TRIMMER	10P		
C105A	C05-0030-15	CAP. TRIMMER	20P		
C105B	C05-0030-15	CAP. TRIMMER	20P		
C107A	C05-0309-05	CAP. TRIMMER	40P		
C107B	C05-0309-05	CAP. TRIMMER	40P		
C113	C91-1297-08	CAP. MICA	150P	10%	
C114	C91-1297-08	CAP. MICA	150P	10%	
C116	CF92V1H472K	CAP. POLYESTER	4700P	10%	50V
C117	CF92V1H472K	CAP. POLYESTER	4700P	10%	50V
C119	CF92V1H102K	CAP. POLYESTER	1000P	10%	50%
C120	CE04W2C2R2M	CAP. ELECTRO	2.2	20%	160V
C121	C90-0994-08	CAP. ELECTRO	47	20%	35V
C122	C90-0994-08	CAP. ELECTRO	47	20%	35V
C123	C90-0994-08	CAP. ELECTRO	47	20%	35V
C124A	C91-1289-08	CAP. POLYESTER	0.047	10%	400V
C124B	C91-1289-08	CAP. POLYESTER	0.047	10%	400V
C125A	C91-1298-08	CAP. CERAMIC	0.01		50V
C125B	C91-1298-08	CAP. CERAMIC	0.01		50V
C126	C90-0994-08	CAP. ELECTRO	47	20%	35V
C127A	C90-0994-08	CAP. ELECTRO	47	20%	35V
C127B	C90-0994-08	CAP. ELECTRO	47	20%	35V
C129	C05-0030-15	CAP. TRIMMER	20P		
C131	C91-1298-08	CAP. CERAMIC	0.01		50V
C132	C91-1298-08	CAP. CERAMIC	0.01		50V
C133	C91-1295-08	CAP. CERAMIC	0.068	20%	25V
C134	C91-1295-08	CAP. CERAMIC	0.068	20%	25V
C135	CF92V1H102K	CAP. POLYESTER	1000P	10%	50%
C136A	CM93BD2A010D	CAP. MICA	1P	0.5P	100V
C136B	CM93BD2A010D	CAP. MICA	1P	0.5P	100V
C136C	R92-1061-05	JUMPING RES.	ZERO OHM (SMM)		
C137A	CM93BD2A010D	CAP. MICA	1P	0.5P	100V
C137B	CM93BD2A010D	CAP. MICA	1P	0.5P	100V
C137C	R92-1061-05	JUMPING RES.	ZERO OHM (SMM)		
C138	C91-1298-08	CAP. CERAMIC	0.01		50V
C139	C91-1298-08	CAP. CERAMIC	0.01		50V
C141A	C91-1298-08	CAP. CERAMIC	0.01		50V
C141B	C91-1298-08	CAP. CERAMIC	0.01		50V
C142A	CM93BD2A560J	CAP. MICA	56P	5%	100V
C142B	CM93BD2A560J	CAP. MICA	56P	5%	100V
C143A	CM93BD2A070D	CAP. MICA	7P	0.5P	100V
C143B	CM93BD2A070D	CAP. MICA	7P	0.5P	100V
C144	CM93BD2A101J	CAP. MICA	100P	5%	100V
C146	CM93BD2A030D	CAP. MICA	3P	0.5P	100V
C147A	C91-1295-08	CAP. CERAMIC	0.068	20%	25V
C147B	C91-1295-08	CAP. CERAMIC	0.068	20%	25V
C148A	CM93BD2A560J	CAP. MICA	56P	5%	100V
C148B	CM93BD2A560J	CAP. MICA	56P	5%	100V
C149A	CM93BD2A270J	CAP. MICA	27P	5%	100V
C149B	CM93BD2A200J	CAP. MICA	20P	5%	100V
C150A	CM93BD2A080D	CAP. MICA	8P	0.5P	100V
C150B	CM93BD2A080D	CAP. MICA	8P	0.5P	100V
C151A	CM93BD2A030D	CAP. MICA	3P	0.5P	100V
C151B	CM93BD2A030D	CAP. MICA	3P	0.5P	100V
C152A	CM93BD2A070D	CAP. MICA	7P	0.5P	100V
C152B	CM93BD2A070D	CAP. MICA	7P	0.5P	100V
C153	C91-1298-08	CAP. CERAMIC	0.01		50V
C154	C91-1298-08	CAP. CERAMIC	0.01		50V
C155	C91-1298-08	CAP. CERAMIC	0.01		50V
C156	C91-1296-08	CAP. CERAMIC	0.1	10%	100V
C157A	CM93BD2A200J	CAP. MICA	20P	5%	100V
C157B	CM93BD2A200J	CAP. MICA	20P	5%	100V
D101A	1S1587	DIODE			
D101B	1S1587	DIODE			
D104A	1SS200	DIODE			
D104B	1SS200	DIODE			
D106A	1SS200	DIODE			
D106B	1SS200	DIODE			
D108A	1SS200	DIODE			
D108B	1SS200	DIODE			
D110A	1SS200	DIODE			
D110B	1SS200	DIODE			
D112	05Z5.6Y	DIODE, ZENER	5.6V		
D113	05Z5.6Y	DIODE, ZENER	5.6V		
D114	1SS16	DIODE			
D116	1SS16	DIODE			
D117	1N60	DIODE			
D118A	05Z5.6Y	DIODE, ZENER	5.6V		
D118B	05Z5.6Y	DIODE, ZENER	5.6V		
D120	1N60	DIODE			
D121	1N60	DIODE			
D122	1N60	DIODE			
D123A	1S1587	DIODE			
D123B	1S1587	DIODE			
D124A	1S1587	DIODE			
D124B	1S1587	DIODE			
D125A	1S1587	DIODE			
D125B	1S1587	DIODE			
IC101	SN74LS74AN	IC, D-FLIP FLOP			
IC102	SN74LS02N	IC, QUAD 2-INPUT NOR GATE			
J102A	E23-0571-08	PIN TERMINAL			
J102B	E23-0571-08	PIN TERMINAL			
J103A	E23-0571-08	PIN TERMINAL			
J103B	E23-0571-08	PIN TERMINAL			
J105	E40-7047-08	PIN CONNECTOR	6 P		
J106	E40-7047-08	PIN CONNECTOR	6 P		
J107A	E40-7047-08	PIN CONNECTOR	6 P		
J107B	E40-7047-08	PIN CONNECTOR	6 P		
J109	E40-7045-08	PIN CONNECTOR	3 P		
L103	L37-0048-08	COIL	2.7UH	20%	
L104	L37-0048-08	COIL	2.7UH	20%	
Q101A	2SA1005(L)	TR. SI, PNP			
Q101B	2SA1005(L)	TR. SI, PNP			
Q102A	2SK240(BL)	FET, N-CHANNEL			
Q102B	2SK240(BL)	FET, N-CHANNEL			
Q104A	2SA1005(L)	TR. SI, PNP			
Q104B	2SA1005(L)	TR. SI, PNP			
Q105A	2SC1923(D)	TR. SI, NPN			
Q105B	2SC1923(D)	TR. SI, NPN			
Q106A	2SC1923(D)	TR. SI, NPN			
Q106B	2SC1923(D)	TR. SI, NPN			

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION			
Q107A	2SC1923(D)	TR. SI, NPN			
Q107B	2SC1923(D)	TR. SI, NPN			
Q108A	2SC1923(D)	TR. SI, NPN			
Q108B	2SC1923(D)	TR. SI, NPN			
Q109A	2SA1005(K)	TR. SI, PNP			
Q109B	2SA1005(K)	TR. SI, PNP			
Q110A	2SA1005(K)	TR. SI, PNP			
Q110B	2SA1005(K)	TR. SI, PNP			
Q111A	2SA1005(L)	TR. SI, PNP			
Q111B	2SA1005(L)	TR. SI, PNP			
Q112A	2SA1005(L)	TR. SI, PNP			
Q112B	2SA1005(L)	TR. SI, PNP			
Q113A	2SA1015(Y)	TR. SI, PNP			
Q113B	2SA1015(Y)	TR. SI, PNP			
Q114A	2SA1015(Y)	TR. SI, PNP			
Q114B	2SA1015(Y)	TR. SI, PNP			
Q116	2SA1005(L)	TR. SI, PNP			
Q117	2SA1005(L)	TR. SI, PNP			
Q118	2SC1923(D)	TR. SI, NPN			
Q119	2SC1923(D)	TR. SI, NPN			
Q120	2SC1730(Y)	TR. SI, NPN			
Q121	2SC1730(Y)	TR. SI, NPN			
Q122	2SC3423(Y)	TR. SI, NPN			
Q123	2SC3423(Y)	TR. SI, NPN			
Q124	2SC3423(Y)	TR. SI, NPN			
Q125	2SC3423(Y)	TR. SI, NPN			
Q127A	2SK117(BL)	FET, N-CHANNEL			
Q127B	2SK117(BL)	FET, N-CHANNEL			
Q128	2SC1815(GR)	TR. SI, NPN			
R1A0	RD14BB2E301J	RES, CARBON	300	5%	1/4W
R1A1	R12-1554-08	RES. SEMI FIXED	1KB		
R1A2	RD14BB2E301J	RES, CARBON	300	5%	1/4W
R1A3	RD14BB2E752J	RES. CARBON	7.5K	5%	1/4W
R1A4	RD14BB2E752J	RES. CARBON	7.5K	5%	1/4W
R1A5	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R1A6	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R1A7	RD14BB2E180J	RES. CARBON	18	5%	1/4W
R1A8	RD14BB2E180J	RES. CARBON	18	5%	1/4W
R1A9	RD14BB2E152J	RES. CARBON	1.5K	5%	1/4W
R1B0	RD14BB2E303J	RES. CARBON	30K	5%	1/4W
R1B1	RD14BB2E152J	RES. CARBON	1.5K	5%	1/4W
R1B2	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R1B4	RD14BB2E2R2J	RES. CARBON	2.2	5%	1/4W
R1B5	RD14BB2E2R2J	RES. CARBON	2.2	5%	1/4W
R1B6A	RN14BK2E5601F	RES. METAL FILM	5.6K	1%	1/4W
R1B6B	RN14BK2E5601F	RES. METAL FILM	5.6K	1%	1/4W
R1B7A	RN14BK2E5601F	RES. METAL FILM	5.6K	1%	1/4W
R1B7B	RN14BK2E5601F	RES. METAL FILM	5.6K	1%	1/4W
R1B8A	RN14BK2E1981F	RES. METAL FILM	1.98K	1%	1/4W
R1B8B	RN14BK2E1981F	RES. METAL FILM	1.98K	1%	1/4W
R1B9A	RN14BK2E1981F	RES. METAL FILM	1.98K	1%	1/4W
R1B9B	RN14BK2E1981F	RES. METAL FILM	1.98K	1%	1/4W
R1C0A	RD14BB2E121J	RES. CARBON	120	5%	1/4W
R1C0B	RD14BB2E121J	RES. CARBON	120	5%	1/4W
R1C1A	RD14BB2E511J	RES. CARBON	510	5%	1/4W
R1C1B	RD14BB2E511J	RES. CARBON	510	5%	1/4W
R1C2A	RD14BB2E511J	RES. CARBON	510	5%	1/4W
R1C2B	RD14BB2E511J	RES. CARBON	510	5%	1/4W
R1C3A	R12-0587-08	RES. SEMI FIXED	330 B		
R1C3B	R12-0587-08	RES. SEMI FIXED	330 B		
R1C4	RD14BB2E680J	RES. CARBON	68	5%	1/4W
R1C5	RD14BB2E680J	RES. CARBON	68	5%	1/4W
R1C6A	RD14BB2E100J	RES. CARBON	10	5%	1/4W
R1C6B	RD14BB2E100J	RES. CARBON	10	5%	1/4W
R1C7A	RD14BB2E121J	RES. CARBON	120	5%	1/4W
R1C7B	RD14BB2E121J	RES. CARBON	120	5%	1/4W
R1C8A	RD14BB2E121J	RES. CARBON	120	5%	1/4W
R1C8B	RD14BB2E121J	RES. CARBON	120	5%	1/4W
R1C9A	RD14BB2E561J	RES. CARBON	560	5%	1/4W
R1C9B	RD14BB2E561J	RES. CARBON	560	5%	1/4W
R1D1	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R101A	RD14BB2E334J	RES. CARBON	330K	5%	1/4W
R101B	RD14BB2E334J	RES. CARBON	330K	5%	1/4W
R102A	R12-3442-05	RES. SEMI FIXED	47KB		
R102B	R12-3442-05	RES. SEMI FIXED	47KB		
R103A	RD14BB2E243J	RES. CARBON	24K	5%	1/4W
R103B	RD14BB2E243J	RES. CARBON	24K	5%	1/4W
R104A	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R104B	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R105A	RN14BK2E1501F	RES. METAL FILM	1.5K	1%	1/4W
R105B	RN14BK2E1501F	RES. METAL FILM	1.5K	1%	1/4W
R106A	RN14BK2E3001F	RES. METAL FILM	3K	1%	1/4W
R106B	RN14BK2E3001F	RES. METAL FILM	3K	1%	1/4W
R107A	RN14BK2E3001F	RES. METAL FILM	3K	1%	1/4W

REF.NO	PARTS NO	NAME & DESCRIPTION			
R107B	RN14BK2E3001F	RES. METAL FILM	3K	1%	1/4W
R108A	RN14BK2E1501F	RES. METAL FILM	1.5K	1%	1/4W
R108B	RN14BK2E1501F	RES. METAL FILM	1.5K	1%	1/4W
R110A	RN14BK2E1001F	RES. METAL FILM	1K	1%	1/4W
R110B	RN14BK2E1001F	RES. METAL FILM	1K	1%	1/4W
R111A	RN14BK2E1580F	RES. METAL FILM	158	1%	1/4W
R111B	RN14BK2E1580F	RES. METAL FILM	158	1%	1/4W
R112A	RN14BK2E3650F	RES. METAL FILM	365	1%	1/4W
R112B	RN14BK2E3650F	RES. METAL FILM	365	1%	1/4W
R113A	RN14BK2E9760F	RES. METAL FILM	976	1%	1/4W
R113B	RN14BK2E9760F	RES. METAL FILM	976	1%	1/4W
R114A	RN14BK2E1001F	RES. METAL FILM	1K	1%	1/4W
R114B	RN14BK2E1001F	RES. METAL FILM	1K	1%	1/4W
R115A	R92-1061-05	JUMPING RES.	ZERO OHM		(5MM)
R115B	R92-1061-05	JUMPING RES.	ZERO OHM		(5MM)
R116A	RD14BB2E271J	RES. CARBON	270	5%	1/4W
R116B	RD14BB2E271J	RES. CARBON	270	5%	1/4W
R117A	R12-0588-08	RES. SEMI FIXED	220 B		
R117B	R12-0588-08	RES. SEMI FIXED	220 B		
R118A	RN14BK2E3001F	RES. METAL FILM	3K	1%	1/4W
R118B	RN14BK2E3001F	RES. METAL FILM	3K	1%	1/4W
R119A	R12-0585-08	RES. SEMI FIXED	470 B		
R119B	R12-0585-08	RES. SEMI FIXED	470 B		
R120A	R12-1553-08	RES. SEMI FIXED	2.2KB		
R120B	R12-1553-08	RES. SEMI FIXED	2.2KB		
R121A	RN14BK2E3001F	RES. METAL FILM	3K	1%	1/4W
R121B	RN14BK2E3001F	RES. METAL FILM	3K	1%	1/4W
R122A	R92-1061-05	JUMPING RES.	ZERO OHM		(5MM)
R122B	R92-1061-05	JUMPING RES.	ZERO OHM		(5MM)
R123A	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R123B	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R125A	R12-0588-08	RES. SEMI FIXED	220 B		
R125B	R12-0588-08	RES. SEMI FIXED	220 B		
R126A	RD14BB2E163J	RES. CARBON	16K	5%	1/4W
R126B	RD14BB2E163J	RES. CARBON	16K	5%	1/4W
R127A	RD14BB2E752J	RES. CARBON	7.5K	5%	1/4W
R127B	RD14BB2E752J	RES. CARBON	7.5K	5%	1/4W
R128A	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R128B	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R129A	RD14BB2E122J	RES. CARBON	1.2K	5%	1/4W
R129B	RD14BB2E122J	RES. CARBON	1.2K	5%	1/4W
R130A	RN14BK2E4700F	RES. METAL FILM	470	1%	1/4W
R130B	RN14BK2E4700F	RES. METAL FILM	470	1%	1/4W
R132A	RD14BB2E681J	RES. CARBON	680	5%	1/4W
R132B	RD14BB2E681J	RES. CARBON	680	5%	1/4W
R133A	RN14BK2E4700F	RES. METAL FILM	470	1%	1/4W
R133B	RN14BK2E4700F	RES. METAL FILM	470	1%	1/4W
R135A	RN14BK2E1201F	RES. METAL FILM	1.2K	1%	1/4W
R135B	RN14BK2E1201F	RES. METAL FILM	1.2K	1%	1/4W
R136A	R12-1553-08	RES. SEMI FIXED	2.2KB		
R136B	R12-1553-08	RES. SEMI FIXED	2.2KB		
R137A	RN14BK2E1201F	RES. METAL FILM	1.2K	1%	1/4W
R137B	RN14BK2E1201F	RES. METAL FILM	1.2K	1%	1/4W
R138B	R92-1061-05	JUMPING RES.	ZERO OHM		(5MM)
R139B	R92-1061-05	JUMPING RES.	ZERO OHM		(5MM)
R140A	RD14BB2E302J	RES. CARBON	3K	5%	1/4W
R140B	RD14BB2E302J	RES. CARBON	3K	5%	1/4W
R142A	RD14BB2E302J	RES. CARBON	3K	5%	1/4W
R142B	RD14BB2E302J	RES. CARBON	3K	5%	1/4W
R143A	RD14BB2E912J	RES. CARBON	9.1K	5%	1/4W
R143B	RD14BB2E912J	RES. CARBON	9.1K	5%	1/4W
R144A	RD14BB2E332J	RES. CARBON	3.3K	5%	1/4W
R144B	RD14BB2E332J	RES. CARBON	3.3K	5%	1/4W
R145A	RD14BB2E122J	RES. CARBON	1.2K	5%	1/4W
R145B	RD14BB2E122J	RES. CARBON	1.2K	5%	1/4W
R146A	RD14BB2E392J	RES. CARBON	3.9K	5%	1/4W
R146B	RD14BB2E392J	RES. CARBON	3.9K	5%	1/4W
R147A	RD14BB2E392J	RES. CARBON	3.9K	5%	1/4W
R147B	RD14BB2E392J	RES. CARBON	3.9K	5%	1/4W
R148A	RD14BB2E302J	RES. CARBON	3K	5%	1/4W
R148B	RD14BB2E302J	RES. CARBON	3K	5%	1/4W
R149A	R12-3557-08	RES. SEMI FIXED	10KB		
R149B	R12-3557-08	RES. SEMI FIXED	10KB		
R150A	RD14BB2E302J	RES. CARBON	3K	5%	1/4W
R150B	RD14BB2E302J	RES. CARBON	3K	5%	1/4W
R156	RD14BB2E301J	RES, CARBON	300	5%	1/4W
R157	RD14BB2E751J	RES. CARBON	750	5%	1/4W
R158	RD14BB2E391J	RES. CARBON	390	5%	1/4W
R159	RD14BB2E391J	RES. CARBON	390	5%	1/4W
R160	RD14BB2E301J	RES, CARBON	300	5%	1/4W
R161	RD14BB2E431J	RES. CARBON	430	5%	1/4W
R163	RN14BK2E2700F	RES. METAL FILM	270	1%	1/4W
R164	RN14BK2E1600F	RES. METAL FILM	160	1%	1/4W
R166	RN14BK2E2700F	RES. METAL FILM	270	1%	1/4W

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION			
R167	RN14BK2E1600F	RES. METAL FILM	160	1%	1/4W
R169	RD14BB2E273J	RES. CARBON	27K	5%	1/4W
R170	RD14BB2E273J	RES. CARBON	27K	5%	1/4W
R174	R92-1061-05	JUMPING RES.	ZERO	OHM	(5MM)
R175	R92-1061-05	JUMPING RES.	ZERO	OHM	(5MM)
R176	RN14BK2E2702F	RES. METAL FILM	27K	1%	1/4W
R177	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R178	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R179	RN14BK2E2702F	RES. METAL FILM	27K	1%	1/4W
R180	RD14BB2E361J	RES. CARBON	360	5%	1/4W
R181	RD14BB2E361J	RES. CARBON	360	5%	1/4W
R182	RD14BB2E471J	RES. CARBON	470	5%	1/4W
R183	RD14BB2E363J	RES. CARBON	36K	5%	1/4W
R184	RD14BB2E363J	RES. CARBON	36K	5%	1/4W
R185	RD14BB2E471J	RES. CARBON	470	5%	1/4W
R186	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R187	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R189	RD14BB2E152J	RES. CARBON	1.5K	5%	1/4W
R190	RD14BB2E222J	RES. CARBON	2.2K	5%	1/4W
R191	RD14BB2E222J	RES. CARBON	2.2K	5%	1/4W
R192	RD14BB2E751J	RES. CARBON	750	5%	1/4W
R193A	RN14BK2E1004F	RES. METAL FILM	1M	1%	1/4W
R193B	RN14BK2E1004F	RES. METAL FILM	1M	1%	1/4W
R194A	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R194B	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R195A	RD14BB2E302J	RES. CARBON	3K	5%	1/4W
R195B	RD14BB2E302J	RES. CARBON	3K	5%	1/4W
R196A	RD14BB2E302J	RES. CARBON	3K	5%	1/4W
R196B	RD14BB2E302J	RES. CARBON	3K	5%	1/4W
R197A	RD14BB2E301J	RES. CARBON	300	5%	1/4W
R197B	RD14BB2E301J	RES. CARBON	300	5%	1/4W
S101A	S33-2507-08	LEVER SWITCH			
S101B	S33-2507-08	LEVER SWITCH			
S102A	S02-3503-08	ATTENUATOR			
S102B	S02-3503-08	ATTENUATOR			
S104	S42-2517-08	SWITCH			
S106	S03-4503-08	ROTARY SWITCH			

CS-3035 HORIZONTAL UNIT

W02-0469-08

REF.NO	PARTS NO	NAME & DESCRIPTION			
	F19-0720-08	PLATE			
	J25-5321-08	PCB (UNMOUNTED)			
C301	CF92V1H103J	CAP. POLYESTER	0.01	5%	50V
C302	CF93AN2D222K	CAP. POLYESTER	2200P	10%	200V
C303	CF93AN2D473K	CAP. POLYESTER	0.047	10%	200V
C304	CF92V1H102J	CAP. POLYESTER	1000P	5%	50V
C305	CM93BF2A101J	CAP. MICA	100P	5%	100V
C306	CM93BF2A471J	CAP. MICA	470P	5%	100V
C307	C90-0995-08	CAP. ELECTRO	10	20%	50V
C308	CM93BF2A121J	CAP. MICA	120P	5%	100V
C309	CM93BD2A100D	CAP. MICA	10P	0.5P	100V
C310	C91-1294-08	CAP. FILM	2.2	2%	50V
C311	C91-1293-08	CAP. FILM	0.022	1%	50V
C312	C91-1302-08	CAP. MICA	220P	5%	50V
C313	C90-0995-08	CAP. ELECTRO	10	20%	50V
C314	C90-0995-08	CAP. ELECTRO	10	20%	50V
C315	CF92V1H473J	CAP. POLYESTER	0.047	5%	50V
C316	CF92V1H222J	CAP. POLYESTER	2200P	5%	50V
C317	CF92V1H102J	CAP. POLYESTER	1000P	5%	50V
C318	CK45E2H103P	CAP. CERAMIC	0.01		500V
C319	CK45E2H103P	CAP. CERAMIC	0.01		500V
C320	C91-1286-08	CAP. POLYESTER	0.047	10%	2KV
C321	CK45E2H103P	CAP. CERAMIC	0.01		500V
C322	C90-0993-08	CAP. ELECTRO	2.2	20%	350V
C323	C90-0994-08	CAP. ELECTRO	47	20%	35V
C324	C90-0994-08	CAP. ELECTRO	47	20%	35V
C325	C90-0994-08	CAP. ELECTRO	47	20%	35V
C326	C91-1298-08	CAP. CERAMIC	0.01		50V
C327	C91-1298-08	CAP. CERAMIC	0.01		50V
C328	CF92V1H102J	CAP. POLYESTER	1000P	5%	50V
C329	C91-1298-08	CAP. CERAMIC	0.01		50V
C330	C90-0994-08	CAP. ELECTRO	47	20%	35V
C331	C90-0994-08	CAP. ELECTRO	47	20%	35V
C332	CF92V1H102J	CAP. POLYESTER	1000P	5%	50V
C333	C90-0994-08	CAP. ELECTRO	47	20%	35V
C334	CM93BF2A121J	CAP. MICA	120P	5%	100V
C335	C91-1298-08	CAP. CERAMIC	0.01		50V
C336	C90-0994-08	CAP. ELECTRO	47	20%	35V
C337	C90-0994-08	CAP. ELECTRO	47	20%	35V
C338	C90-0994-08	CAP. ELECTRO	47	20%	35V

REF.NO	PARTS NO	NAME & DESCRIPTION			
C339	C91-1298-08	CAP. CERAMIC	0.01		50V
C340	CM93BF2A270J	CAP. MICA	27P	5%	100V
C341	C90-0994-08	CAP. ELECTRO	47	20%	35V
C342	CM93BF2A151J	CAP. MICA	150P	5%	100V
C343	C91-1298-08	CAP. CERAMIC	0.01		50V
C345A	CM93BD2A010D	CAP. MICA	1P	0.5P	100V
C345B	CM93BD2A010D	CAP. MICA	1P	0.5P	100V
C346A	CM93BD2A010D	CAP. MICA	1P	0.5P	100V
C346B	CM93BD2A010D	CAP. MICA	1P	0.5P	100V
C347	C05-0030-15	CAP. TRIMMER	20P		
C348	C05-0309-05	CAP. TRIMMER	40P		
C349	C91-1298-08	CAP. CERAMIC	0.01		50V
C350	C91-1298-08	CAP. CERAMIC	0.01		50V
C351	C91-1298-08	CAP. CERAMIC	0.01		50V
C352	CM93BF2A121J	CAP. MICA	120P	5%	100V
C353	CM93BF2A221J	CAP. MICA	220P	5%	100V
C354	CM93BF2A221J	CAP. MICA	220P	5%	100V
C355	CM93BD2A050D	CAP. MICA	5P	0.5P	100V
C356	CM93BD2A200J	CAP. MICA	20P	5%	100V
C357	CM93BF2A560J	CAP. MICA	56P	5%	100V
C358	C91-1298-08	CAP. CERAMIC	0.01		50V
C359	C90-0994-08	CAP. ELECTRO	47	20%	35V
C360A	CM93BD2A010D	CAP. MICA	1P	0.5P	100V
C360B	CM93BD2A010D	CAP. MICA	1P	0.5P	100V
D302	1S1587	DIODE			
D303	1S1587	DIODE			
D304	02BZ2.2	DIODE, ZENER	2.2V		
D305	1S1587	DIODE			
D306	1S1587	DIODE			
D307	NO USE				
D308	1S1587	DIODE			
D309	1S1587	DIODE			
D310	1S1587	DIODE			
D311	1S1587	DIODE			
D312	1S1587	DIODE			
D313	1S1587	DIODE			
D314	1S1587	DIODE			
D315	1S1587	DIODE			
D316	1S1587	DIODE			
D317	1S1587	DIODE			
D318	1S1587	DIODE			
D319	1N60	DIODE			
D320	1SS16	DIODE			
D321	05Z9.1Y	DIODE, ZENER	9.1V		
D322	05Z5.6Y	DIODE, ZENER	5.6V		
D323	NO USE				
D324	1N60	DIODE			
IC301	SN74LS74AN	IC, D-FLIP FLOP			
IC302	SN74LS122N	IC, RETRIGG. MONO. MULTIVIB.			
IC303	MC14066BCP	IC, QUAD. ANALOG SW/QUAD. MPX			
IC304	MC14066BCP	IC, QUAD. ANALOG SW/QUAD. MPX			
J302	E23-0571-08	PIN TERMINAL			
J303	E40-7047-08	PIN CONNECTOR	6 P		
J304	E40-7047-08	PIN CONNECTOR	6 P		
J305	E40-7047-08	PIN CONNECTOR	6 P		
J308	E40-7047-08	PIN CONNECTOR	6 P		
J309	E40-7045-08	PIN CONNECTOR	3 P		
J310	NO USE				
J311	E40-7045-08	PIN CONNECTOR	3 P		
J314	E40-7045-08	PIN CONNECTOR	3 P		
J315	E40-7045-08	PIN CONNECTOR	3 P		
Q301	2SA1015(Y)	TR. SI. PNP			
Q302	2SK240(BL)	FET, N-CHANNEL			
Q303	2SC1923(D)	TR. SI. NPN			
Q304	2SC1923(D)	TR. SI. NPN			
Q305	2SK117(BL)	FET, N-CHANNEL			
Q306	2SA1005(L)	TR. SI. PNP			
Q307	2SA1005(L)	TR. SI. PNP			
Q308	2SC1923(D)	TR. SI. NPN			
Q309	2SC1923(D)	TR. SI. NPN			
Q310	2SA1015(Y)	TR. SI. PNP			
Q311	2SA1005(L)	TR. SI. PNP			
Q312	2SA1005(L)	TR. SI. PNP			
Q313	2SC1923(D)	TR. SI. NPN			
Q314	2SC1923(D)	TR. SI. NPN			
Q315	2SA1005(L)	TR. SI. PNP			
Q316	2SA1005(L)	TR. SI. PNP			
Q317	2SA1005(L)	TR. SI. PNP			

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION			
Q318	2SA1005(L)	TR. SI. PNP			
Q319	2SA1015(Y)	TR. SI. PNP			
Q320	2SA1015(Y)	TR. SI. PNP			
Q321	2SA1381	TR. SI. PNP			
Q322	2SC3503	TR. SI. NPN			
Q323	2SC3503	TR. SI. NPN			
Q324	2SA1381	TR. SI. PNP			
Q325	2SC1815(GR)	TR. SI. NPN			
Q326	2SA1005(L)	TR. SI. PNP			
Q327	2SA1005(L)	TR. SI. PNP			
R3A2	RD14BB2E104J	RES. CARBON	100K	5%	1/4W
R3A3	RD14BB2E104J	RES. CARBON	100K	5%	1/4W
R3A4	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R3A5	RD14BB2E335J	RES. CARBON	3.3M	5%	1/4W
R3A6	RD14BB2E302J	RES. CARBON	3K	5%	1/4W
R3A7	RD14BB2E202J	RES. CARBON	2K	5%	1/4W
R3A8	RD14BB2E302J	RES. CARBON	3K	5%	1/4W
R3A9	RD14BB2E392J	RES. CARBON	3.9K	5%	1/4W
R3B0	RD14BB2E392J	RES. CARBON	3.9K	5%	1/4W
R3B1	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R3B2	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R3B3	RD14BB2E322J	RES. CARBON	3.2K	5%	1/4W
R3B4	RD14BB2E331J	RES. CARBON	330	5%	1/4W
R3B5	RD14BB2E183J	RES. CARBON	18K	5%	1/4W
R3B6	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R3B7	RD14BB2E104J	RES. CARBON	100K	5%	1/4W
R3B8	RD14BB2E153J	RES. CARBON	15K	5%	1/4W
R3B9	RD14BB2E562J	RES. CARBON	5.6K	5%	1/4W
R3C0	RD14BB2E105J	RES. CARBON	1M	5%	1/4W
R3C1	R12-1554-08	RES. SEMI FIXED	1KB		
R3C2	RD14BB2E122J	RES. CARBON	1.2K	5%	1/4W
R3C5	RD14BB2E183J	RES. CARBON	18K	5%	1/4W
R3C6	RD14BB2E622J	RES. CARBON	6.2K	5%	1/4W
R3C7	RD14BB2E622J	RES. CARBON	6.2K	5%	1/4W
R3C8	RD14BB2E303J	RES. CARBON	30K	5%	1/4W
R3C9	RD14BB2E222J	RES. CARBON	2.2K	5%	1/4W
R3D0	RD14BB2E302J	RES. CARBON	3K	5%	1/4W
R3D1	RD14BB2E151J	RES. CARBON	150	5%	1/4W
R3D2	RD14BB2E163J	RES. CARBON	16K	5%	1/4W
R3D3	RD14BB2E223J	RES. CARBON	22K	5%	1/4W
R3D4	RD14BB2E331J	RES. CARBON	330	5%	1/4W
R3D5	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R3D6	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R3D7	RD14BB2E111J	RES. CARBON	110	5%	1/4W
R303	RN14BK2E6801F	RES. METAL FILM	6.8K	1%	1/4W
R304	RN14BK2E1602F	RES. METAL FILM	16K	1%	1/4W
R305	RD14BB2E152J	RES. CARBON	1.5K	5%	1/4W
R306	RD14BB2E304J	RES. CARBON	300K	5%	1/4W
R307	NO USE				
R308	RD14BB2E104J	RES. CARBON	100K	5%	1/4W
R309	RD14BB2E684J	RES. CARBON	680K	5%	1/4W
R310	RD14BB2E562J	RES. CARBON	5.6K	5%	1/4W
R311	RD14BB2E434J	RES. CARBON	430K	5%	1/4W
R312	RD14BB2E513J	RES. CARBON	51K	5%	1/4W
R313	RD14BB2E103J	RES. CARBON	10K	5%	1/4W
R314	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R315	RD14BB2E302J	RES. CARBON	3K	5%	1/4W
R316	RD14BB2E123J	RES. CARBON	12K	5%	1/4W
R317	RD14BB2E392J	RES. CARBON	3.9K	5%	1/4W
R318	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R319	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R320	RD14BB2E163J	RES. CARBON	16K	5%	1/4W
R321	RD14BB2E133J	RES. CARBON	13K	5%	1/4W
R322	RD14BB2E302J	RES. CARBON	3K	5%	1/4W
R323	R92-1061-05	JUMPING RES.	ZERO	OHM	(5MM)
R324	RD14BB2E302J	RES. CARBON	3K	5%	1/4W
R325	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R326	NO USE				
R327	RD14BB2E123J	RES. CARBON	12K	5%	1/4W
R328	RD14BB2E243J	RES. CARBON	24K	5%	1/4W
R329	RD14BB2E432J	RES. CARBON	4.3K	5%	1/4W
R330	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R331	RD14BB2E223J	RES. CARBON	22K	5%	1/4W
R332	RD14BB2E510J	RES. CARBON	51	5%	1/4W
R333	RD14BB2E562J	RES. CARBON	5.6K	5%	1/4W
R334	RD14BB2E562J	RES. CARBON	5.6K	5%	1/4W
R335	NO USE				
R336	RD14BB2E622J	RES. CARBON	6.2K	5%	1/4W
R337	RD14BB2E511J	RES. CARBON	510	5%	1/4W
R338	RD14BB2E511J	RES. CARBON	510	5%	1/4W
R339	RD14BB2E622J	RES. CARBON	6.2K	5%	1/4W
R340	RD14BB2E202J	RES. CARBON	2K	5%	1/4W
R341	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R342	RD14BB2E102J	RES. CARBON	1K	5%	1/4W

REF.NO	PARTS NO	NAME & DESCRIPTION			
R343	R12-1408-05	RES. SEMI FIXED	4.7KB		
R344	RD14BB2E511J	RES. CARBON	510	5%	1/4W
R345	RD14BB2E103J	RES. CARBON	10K	5%	1/4W
R346	NO USE				
R347	RD14BB2E682J	RES. CARBON	6.8K	5%	1/4W
R348A	RN14BK2E2004F	RES. METAL FILM	2M	1%	1/4W
R348B	RN14BK2E3004F	RES. METAL FILM	3M	1%	1/4W
R349A	RN14BK2E2004F	RES. METAL FILM	2M	1%	1/4W
R349B	RN14BK2E3004F	RES. METAL FILM	3M	1%	1/4W
R350	RN14BK2E2004F	RES. METAL FILM	2M	1%	1/4W
R351	RN14BK2E1004F	RES. METAL FILM	1M	1%	1/4W
R352	RN14BK2E5003F	RES. METAL FILM	500K	1%	1/4W
R353	RN14BK2E2003F	RES. METAL FILM	200K	1%	1/4W
R354	RN14BK2E1001F	RES. METAL FILM	1K	1%	1/4W
R355	RN14BK2E1003F	RES. METAL FILM	100K	1%	1/4W
R356	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R357	R92-1061-05	JUMPING RES.	ZERO	OHM	(5MM)
R358	R05-3516-08	V.R.	500 B		
R359	RD14BB2E332J	RES. CARBON	3.3K	5%	1/4W
R360	R12-3557-08	RES. SEMI FIXED	10KB		
R361	R12-3557-08	RES. SEMI FIXED	10KB		
R362	R12-1408-05	RES. SEMI FIXED	4.7KB		
R363	R12-1408-05	RES. SEMI FIXED	4.7KB		
R364	RD14BB2E222J	RES. CARBON	2.2K	5%	1/4W
R365	RD14BB2E303J	RES. CARBON	30K	5%	1/4W
R366	RD14BB2E363J	RES. CARBON	36K	5%	1/4W
R367	RD14BB2E303J	RES. CARBON	30K	5%	1/4W
R368	RD14BB2E303J	RES. CARBON	30K	5%	1/4W
R369	RD14BB2E153J	RES. CARBON	15K	5%	1/4W
R370	RD14BB2E513J	RES. CARBON	51K	5%	1/4W
R371	RD14BB2E562J	RES. CARBON	5.6K	5%	1/4W
R372	R12-3557-08	RES. SEMI FIXED	10KB		
R373	RD14BB2E301J	RES. CARBON	300	5%	1/4W
R374	RD14BB2E562J	RES. CARBON	5.6K	5%	1/4W
R375	RD14BB2E322J	RES. CARBON	3.2K	5%	1/4W
R376	RD14BB2E322J	RES. CARBON	3.2K	5%	1/4W
R377	RD14BB2E242J	RES. CARBON	2.4K	5%	1/4W
R378	RD14BB2E161J	RES. CARBON	160	5%	1/4W
R379	R12-0588-08	RES. SEMI FIXED	220 B		
R380	RD14BB2E242J	RES. CARBON	2.4K	5%	1/4W
R381	RD14BB2E242J	RES. CARBON	2.4K	5%	1/4W
R382	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R383	R12-1408-05	RES. SEMI FIXED	4.7KB		
R384	RD14BB2E242J	RES. CARBON	2.4K	5%	1/4W
R385	NO USE				
R386	RD14BB2E914J	RES. CARBON	910K	5%	1/4W
R387	RN14BK2E1003F	RES. METAL FILM	100K	1%	1/4W
R388	RN14BK2E5601F	RES. METAL FILM	5.6K	1%	1/4W
R389	RN14BK2E5601F	RES. METAL FILM	5.6K	1%	1/4W
R390	RD14BB2E103J	RES. CARBON	10K	5%	1/4W
R393	RN14BK2E1003F	RES. METAL FILM	100K	1%	1/4W
R394	RD14BB2E103J	RES. CARBON	10K	5%	1/4W
R395	RD14BB2E152J	RES. CARBON	1.5K	5%	1/4W
R396	RD14BB2E204J	RES. CARBON	200K	5%	1/4W
R397	RD14BB2E204J	RES. CARBON	200K	5%	1/4W
R398	RD14BB2E152J	RES. CARBON	1.5K	5%	1/4W
S301	S33-2508-08	LEVER SWITCH			
S302	S33-2508-08	LEVER SWITCH			
S303	S42-3514-08	SWITCH			
S304	S29-3504-08	ROTARY SWITCH			
TP003	E23-0575-08	TERMINAL			
TP004	E23-0575-08	TERMINAL			

CS-3035 V-POSITION UNIT

W02-0470-08

REF.NO	PARTS NO	NAME & DESCRIPTION	
	J25-5319-08	PCB (UNMOUNTED)	
J108	E40-7055-08	PIN CONNECTOR	6 P
R141	R05-3518-08	V.R.	2X10KB

PARTS LIST

CS-3035 H-POSITION UNIT

W02-0471-08

REF.NO	PARTS NO	NAME & DESCRIPTION			
	J25-5320-08	PCB (UNMOUNTED)			
	R92-1061-05	JUMPING RES.	ZERO OHM (5MM)		
J306	E40-7047-08	PIN CONNECTOR	6 P		
J307	E40-7047-08	PIN CONNECTOR	6 P		
R301	R05-3518-08	V.R.	2X10KB		
R302	R05-3518-08	V.R.	2X10KB		
R303	RD14BB2E152J	RES. CARBON	1.5K	5%	1/4W
R304	RD14BB2E152J	RES. CARBON	1.5K	5%	1/4W

CS-3035 INTEN UNIT

W02-0472-08

REF.NO	PARTS NO	NAME & DESCRIPTION	
	J25-5325-08	PCB (UNMOUNTED)	
J313	E40-7054-08	PIN CONNECTOR	6 P
R3A0	R05-3520-08	V.R.	10K
R399	R05-3520-08	V.R.	10K

CS-3035 POWER SUPPLY & Z AXIS UNIT

W02-0473-08

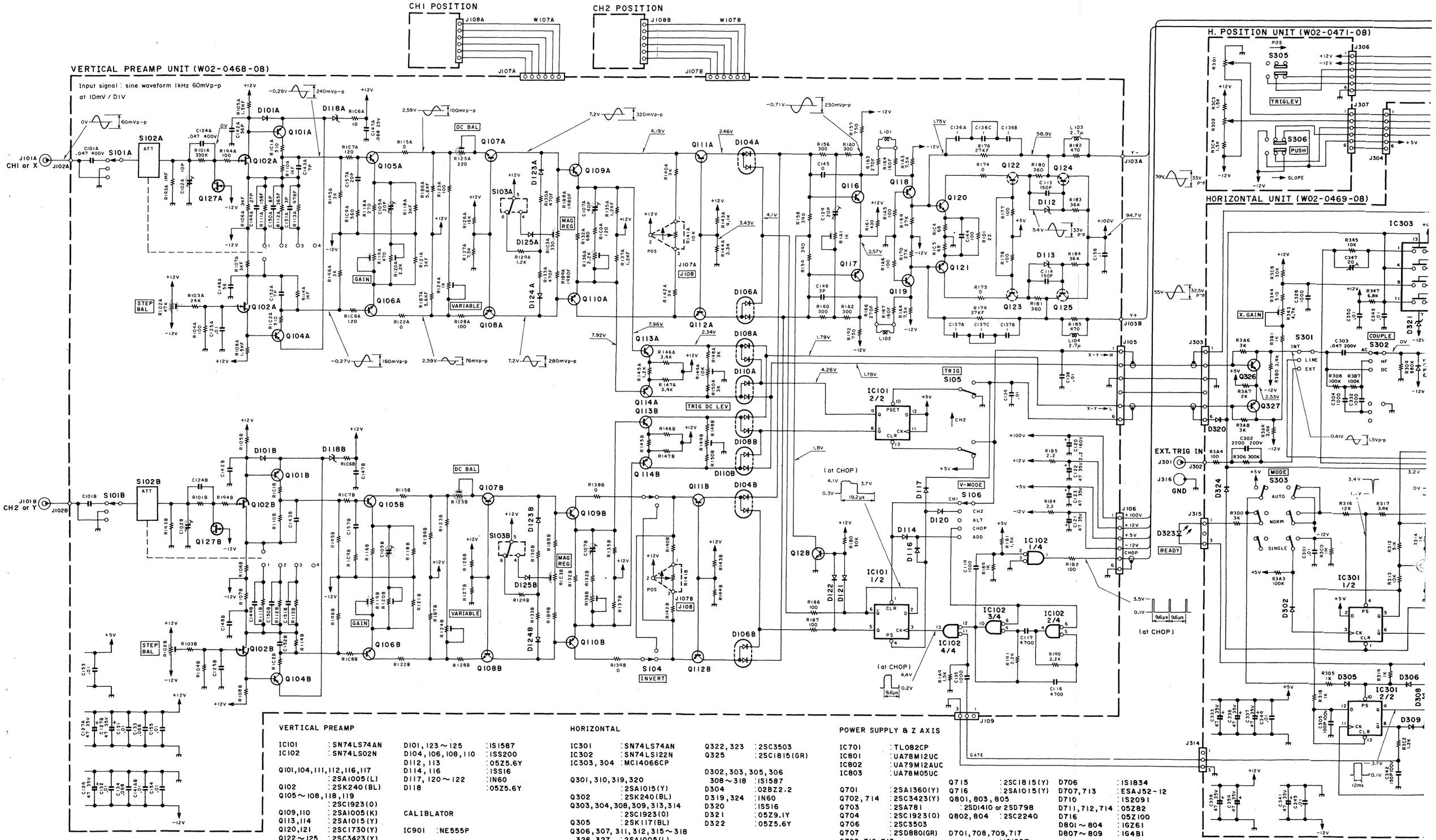
REF.NO	PARTS NO	NAME & DESCRIPTION			
	F01-0873-08	HEAT SINK			
	F11-1223-08	SHIELD CASE			
	F20-0682-08	SPACER(Q1,Q2)			
	J25-5324-08	PCB (UNMOUNTED)			
C701	C91-1299-08	CAP. POLYESTER	0.1		400V
C702	C91-1299-08	CAP. POLYESTER	0.1		400V
C703	C91-1285-08	CAP. CERAMIC	6800		2KV
C704	CF92AN2D103K	CAP. POLYESTER	0.01	10%	200V
C705	C91-1285-08	CAP. CERAMIC	6800		2KV
C706	C91-1285-08	CAP. CERAMIC	6800		2KV
C707	C90-0997-08	CAP. ELECTRO	47	20%	63V
C708	CF92V1H104K	CAP. POLYESTER	0.1	10%	50V
C709	C90-0992-08	CAP. ELECTRO	100	20%	35V
C711	C91-1284-08	CAP. CERAMIC	470		2KV
C712	CF92V1H224K	CAP. POLYESTER	0.22	10%	50V
C713	C91-1300-08	CAP. CERAMIC	4700P		2KV
C714A	CM73BD2A010D	CAP. MICA	1P	0.5P	100V
C714B	CM73BD2A010D	CAP. MICA	1P	0.5P	100V
C714C	CM73BD2A010D	CAP. MICA	1P	0.5P	100V
C715	C90-0991-08	CAP. ELECTRO	33	20%	16V
C716	C91-1285-08	CAP. CERAMIC	6800		2KV
C717	C91-1298-08	CAP. CERAMIC	0.01		50V
C718	C91-1285-08	CAP. CERAMIC	6800		2KV
C719	NO USE				
C720	CF92AN2A223K	CAP. POLYESTER	0.022	10%	100V
C721	C91-1285-08	CAP. CERAMIC	6800		2KV
C722	CM93BF2A121K	CAP. MICA	120P	10%	100V
C802	C90-0998-08	CAP. ELECTRO	47	20%	250V
C803	C90-0993-08	CAP. ELECTRO	2.2	20%	350V
C804	C90-0998-08	CAP. ELECTRO	47	20%	250V
C805	C90-3001-08	CAP. ELECTRO	2.2	20%	160V
C806	C90-0996-08	CAP. ELECTRO	1000	20%	50V
C807	NO USE				
C808	C90-0992-08	CAP. ELECTRO	100	20%	35V
C811	C90-0996-08	CAP. ELECTRO	1000	20%	50V
C812	NO USE				
C813	C90-0992-08	CAP. ELECTRO	100	20%	35V
C814	C91-1299-08	CAP. POLYESTER	0.1		400V
C815	CF92AN2D103K	CAP. POLYESTER	0.01	10%	200V
C816	C90-0994-08	CAP. ELECTRO	47	20%	35V
D701	1S1587	DIODE			
D702	05Z5.6Y	DIODE, ZENER	5.6V		
D706	1S1834	DIODE			
D707	ESJA52-12	DIODE, HIGH VOLTAGE			
D708	1S1587	DIODE			
D709	1S1587	DIODE			
D710	1S2091	DIODE			
D711	05Z82	DIODE, ZENER	82V		
D712	05Z82	DIODE, ZENER	82V		
D713	ESJA52-12	DIODE, HIGH VOLTAGE			
D714	05Z82	DIODE, ZENER	82V		
D715	NO USE				
D716	05Z100	DIODE, ZENER	100V		
D717	1S1587	DIODE			
D801	1GZ61	DIODE			
D802	1GZ61	DIODE			
D803	NO USE				
D804	1GZ61	DIODE			
D807	1G4B1	DIODE,STACK			
D808	1G4B1	DIODE,STACK			
D809	1G4B1	DIODE,STACK			
IC701	TL082CP	IC, OP AMP			
IC801	UA78M12UC	IC, POSITIVE VOLTAGE REGULATOR			
IC802	UA79M12AUC	IC, NEGATIVE VOLTAGE REGULATOR			
IC803	UA78M05UC	IC, POSITIVE VOLTAGE REGULATOR			
J701	E40-7047-08	PIN CONNECTOR	6 P		
J702	E40-7047-08	PIN CONNECTOR	6 P		
J703	E40-7045-08	PIN CONNECTOR	3 P		
J802	E40-7052-08	PIN CONNECTOR	15P		
J803	E40-7053-08	PIN CONNECTOR	8 P		
J804	E40-7047-08	PIN CONNECTOR	6 P		
J805	E40-7047-08	PIN CONNECTOR	6 P		
J806	E40-7047-08	PIN CONNECTOR	6 P		
J807	E40-7045-08	PIN CONNECTOR	3 P		
J808	E40-7045-08	PIN CONNECTOR	3 P		
Q701	2SA1360(Y)	TR. SI, PNP			
Q702	2SC3423(Y)	TR. SI, NPN			
Q703	2SA781	TR. SI, PNP			
Q704	2SC1923(D)	TR. SI, NPN			
Q705	NO USE				
Q706	2SC3503	TR. SI, NPN			
Q707	2SD880(GR)	TR. SI, NPN			
Q708	NO USE				
Q709	2SA1091(D)	TR. SI, PNP			
Q710	2SA1091(D)	TR. SI, PNP			
Q711	2SC1815(GR)	TR. SI, NPN			
Q712	2SA1015(Y)	TR. SI, PNP			
Q713	2SA1091(D)	TR. SI, PNP			
Q714	2SC3423(Y)	TR. SI, NPN			
Q715	2SC1815(Y)	TR. SI, NPN			
Q716	2SA1015(Y)	TR. SI, PNP			
Q801	2SD1410	TR. SI, NPN			
Q802	2SC2240	TR. SI, NPN			
Q803	2SD1410	TR. SI, NPN			
Q804	2SC2240	TR. SI, NPN			
Q805	2SD1410	TR. SI, NPN			
R701	RD14BB2E105J	RES. CARBON	1M	5%	1/4W
R702	RD14BB2E683J	RES. CARBON	68K	5%	1/4W
R703	RD14BB2E272J	RES. CARBON	2.7K	5%	1/4W
R704	RD14BB2E623J	RES. CARBON	62K	5%	1/4W
R705	RD14BB2E302J	RES. CARBON	3K	5%	1/4W
R706	RD14BB2E752J	RES. CARBON	7.5K	5%	1/4W
R707	RD14BB2E510J	RES. CARBON	51	5%	1/4W
R708	RD14BB2E154J	RES. CARBON	150K	5%	1/4W
R715	R12-8517-08	RES. SEMI FIXED	1.0MB		
R716	RD14BB2E514J	RES. CARBON	510K	5%	1/4W
R717	R92-1438-08	RES. FUSE	5.1	5%	1/2W
R718	RD14BB2E121J	RES. CARBON	120	5%	1/4W
R719	RD14BB2E332J	RES. CARBON	3.3K	5%	1/4W
R720	RN14BK2E3203F	RES. METAL FILM	320K	1%	1/4W
R721	RD14BB2E303J	RES. CARBON	30K	5%	1/4W
R722	NO USE				
R723	R92-1437-08	RES. CARBON	47M	2%	
R724	NO USE				
R725	RD14BB2E104J	RES. CARBON	100K	5%	1/4W
R728	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R729A	RD14BB2E305J	RES. CARBON	3M	5%	1/4W
R729B	RD14BB2E305J	RES. CARBON	3M	5%	1/4W
R729C	RD14BB2E305J	RES. CARBON	3M	5%	1/4W
R729D	RD14BB2E305J	RES. CARBON	3M	5%	1/4W
R730	RD14BB2E623J	RES. CARBON	62K	5%	1/4W
R731A	RD14BB2E155J	RES. CARBON	1.5M	5%	1/4W
R731B	RD14BB2E155J	RES. CARBON	1.5M	5%	1/4W
R732A	RD14BB2E155J	RES. CARBON	1.5M	5%	1/4W
R732B	RD14BB2E155J	RES. CARBON	1.5M	5%	1/4W
R736A	RD14BB2E155J	RES. CARBON	1.5M	5%	1/4W
R736B	RD14BB2E155J	RES. CARBON	1.5M	5%	1/4W
R737	RD14BB2E475J	RES. CARBON	4.7M	5%	1/4W
R738	R12-8514-08	RES. SEMI FIXED	2.2MB		
R739	RD14BB2E155J	RES. CARBON	1.5M	5%	1/4W
R740	RD14BB2E120J	RES. CARBON	12	5%	1/4W
R741	RD14BB2E104J	RES. CARBON	100K	5%	1/4W
R742	RD14BB2E333J	RES. CARBON	33K	5%	1/4W
R743	R12-3559-08	RES. SEMI FIXED	22KB		
R746	RD14BB2E104J	RES. CARBON	100K	5%	1/4W
R747	RD14BB2E303J	RES. CARBON	30K	5%	1/4W
R801	RD14BB2E121J	RES. CARBON	120	5%	1/4W
R802	NO USE				
R803	RD14BB2E100J	RES. CARBON	10	5%	1/4W
R804	RD14BB2E104J	RES. CARBON	100K	5%	1/4W
R805	RN14BK2E1204F	RES. METAL FILM	1.2M	1%	1/4W
R806	RN14BK2E6202F	RES. METAL FILM	62K	1%	1/4W
R807	RN14BK2E4303F	RES. METAL FILM	430K	1%	1/4W
R808	NO USE				
R809	RD14BB2E100J	RES. CARBON	10	5%	1/4W
T701	L19-0424-08	CONVERTOR TRANSFORMER			

BP-70 CONVERTER UNIT

X80-1310-00

REF.NO	PARTS NO	NAME & DESCRIPTION			
	F20-0682-08	SPACER(Q1,Q2)			
	F29-0512-08	SPACER,M2.6(Q1,Q2)			
	J13-0510-08	FUSE HOLDER			
	J25-5326-08	PCB (UNMOUNTED)			
C001	C90-0992-08	CAP. ELECTRO	100	20%	35V
C002	C90-1000-08	CAP. ELECTRO	4.7	20%	250V
C003	C90-0999-08	CAP. ELECTRO	10	20%	160V
C004	C90-0992-08	CAP. ELECTRO	100	20%	35V
C005	C90-0992-08	CAP. ELECTRO	100	20%	35V
C006	C90-0995-08	CAP. ELECTRO	10	20%	50V
C007	CF92V1H222K	CAP. POLYESTER	2200P	10%	50V
C008	CF92V1H222K	CAP. POLYESTER	2200P	10%	50V
C009	C90-0995-08	CAP. ELECTRO	10	20%	50V
C010	CF92AN2D222K	CAP. POLYESTER	2200P	10%	200V
C011	CF92AN2D222K	CAP. POLYESTER	2200P	10%	200V
D001	1S1587	DIODE			
D002	05Z10Y	DIODE, ZENER	10V		
D003	NO USE				
D004	UB-154	DIODE			
D005	UB-154	DIODE			
D006	UB-154	DIODE			
D007	1S1888	DIODE			
D008	E-452	DIODE, CURRENT REGULATOR			
D009	1S1587	DIODE			
D010	1S1587	DIODE			
D011	05Z15Y	DIODE, ZENER	15V		
D012	05Z15Y	DIODE, ZENER	15V		
D013	1S1587	DIODE			
D014	1S1587	DIODE			
D015	1SS16	DIODE			
D016	1GZ61	DIODE			
F001	F06-3027-05	FUSE(5X20MM)	3A		
F002	F06-3027-05	FUSE(5X20MM)	3A		
F003	F04-5011-08	FUSE WITH WIRE	0.5A		
IC001	TC4001BP	IC, QUAD 2 INPUT NOR GATE			
IC002	TC4093BP	IC,QUAD 2 INPUT NAND SCHMITT			
J001	E23-0576-08	TERMINAL	1P		
J002	NO USE				
J003	E40-7045-08	PIN CONNECTOR	3 P		
J004	E40-7045-08	PIN CONNECTOR	3 P		
L001	L33-0812-08	CHOKE COIL	4.7UH		
P002	E08-2581-08	CONNECTOR	15P		
Q001	2SK812	FET, N-CHANNEL			
Q002	2SK812	FET, N-CHANNEL			
Q003	2SD1410	TR, SI, NPN			
R001	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R002	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R003	RD14BB2E333J	RES. CARBON	33K	5%	1/4W
R004	RD14BB2E333J	RES. CARBON	33K	5%	1/4W
R005	RD14BB2E753J	RES. CARBON	75K	5%	1/4W
R006	RD14BB2E104J	RES. CARBON	100K	5%	1/4W
R007	RD14BB2E163J	RES. CARBON	16K	5%	1/4W
R008	RD14BB2E163J	RES. CARBON	16K	5%	1/4W
R009	RD14DB2H2R7J	RES. CARBON	2.7	5%	1/2W
R010	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R011	RD14BB2E152J	RES. CARBON	1.5K	5%	1/4W
R012	RD14BB2E152J	RES. CARBON	1.5K	5%	1/4W
R013	NO USE				
R014	RD14BB2E152J	RES. CARBON	1.5K	5%	1/4W
R018	RD14BB2E222J	RES. CARBON	2.2K	5%	1/4W
R019	NO USE				
R020	RD14BB2E563J	RES. CARBON	56K	5%	1/4W
R021	R92-0660-05	RES. FIXED	0.22	10%	2W
S001	S31-1504-08	SLIDE SWITCH			
S002	S40-1526-08	PUSH SWITCH			
T001	L19-0425-08	CONVERTOR TRANSFORMER			

SCHEMATIC DIAGRAM



VERTICAL PREAMP

IC101	: SN74LS74AN
IC102	: SN74LS02N
Q101,104,111,112,116,117	: 2SA1005(L)
Q102	: 2SK240(BL)
Q105～108,118,119	: 2SC1923(O)
Q109,110	: 2SA1005(K)
Q113,114	: 2SA1015(Y)
Q120,121	: 2SC1730(Y)
Q122～125	: 2SC3423(Y)
Q127	: 2SK117(BL)
Q128	: 2SC1815(GR)
D101,123～125	: 1S1587
D104,106,108,110	: 1SS200
D112, 113	: 05Z5.6Y
D114, 116	: 1SS16
D117, 120～122	: IN60
D118	: 05Z5.6Y

CALIBLATOR

IC901	: NE555P
D902	: 1S1587

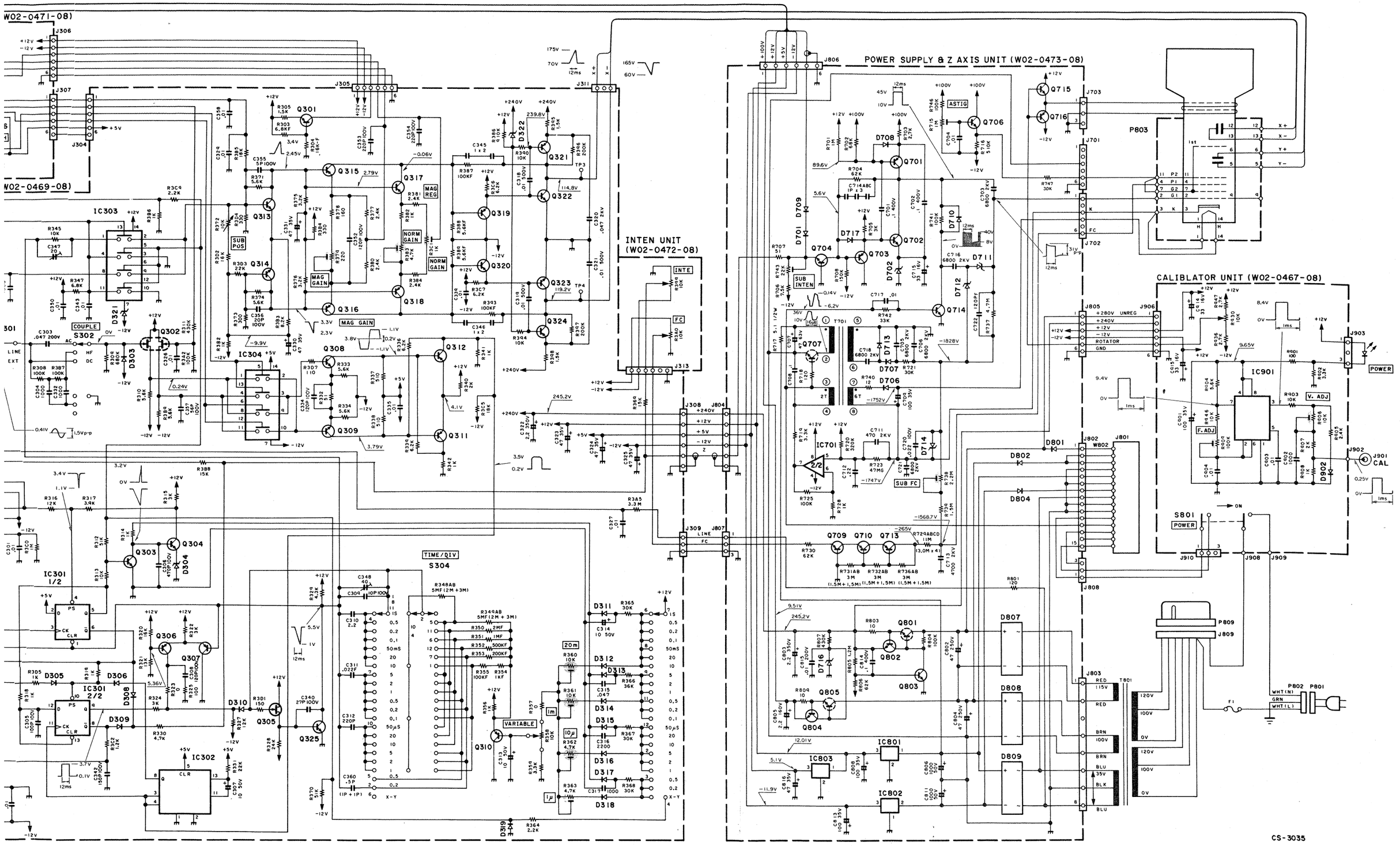
HORIZONTAL

IC301	: SN74LS74AN
IC302	: SN74LS122N
IC303, 304	: MC14066CP
Q301,310,319,320	: 2SA1015(Y)
Q302	: 2SK240(BL)
Q303,304,308,309,313,314	: 2SC1923(O)
Q305	: 2SK117(BL)
Q306,307,311,312,315～318 326,327	: 2SA1005(L)
Q321,324	: 2SA1381
Q322,323	: 2SC3503
Q325	: 2SC1815(GR)
D302,303,305,306 308～318	: 1S1587
D304	: 02BZ2.2
D319,324	: IN60
D320	: 1SS16
D321	: 05Z9.1Y
D322	: 05Z5.6Y

POWER SUPPLY & Z AXIS

IC701	: TL082CP
IC801	: UA78M12UC
IC802	: UA79M12AUC
IC803	: UA78M05UC
Q701	: 2SA1360(Y)
Q702, 714	: 2SC3423(Y)
Q703	: 2SA781
Q704	: 2SC1923(O)
Q706	: 2SC3503
Q707	: 2SD880(GR)
Q709,710,713	: 2SA1091(O)
Q715	: 2SC1815(Y)
Q716	: 2SA1015(Y)
Q801,803,805	: 2SD1410 or 2SD798
Q802,804	: 2SC2240
D701,708,709,717	: 1S1587
D702	: 05Z5.6Y
D706	: 1S1834
D707,713	: ESAJ52-12
D710	: 1S2091
D711,712,714	: 05Z82
D716	: 05Z100
D801～804	: 1GZ61
D807～809	: 1G4B1

IC DIAGRAM


W02-0471-08)
W02-0469-08)
J306
J307
J304
J305
J311
J313
J308
J804
J309
J807
J806
POWER SUPPLY & Z AXIS UNIT (W02-0473-08)
INTEN UNIT
(W02-0472-08)
CALIBLATOR UNIT (W02-0467-08)
IC303
IC304
IC301 1/2
IC301 2/2
IC302
IC701
IC801
IC803
IC802
IC901
Q301
Q302
Q303
Q304
Q305
Q306
Q307
Q308
Q309
Q311
Q312
Q313
Q314
Q315
Q316
Q317
Q318
Q319
Q320
Q321
Q322
Q323
Q324
Q325
Q310
Q701
Q702
Q703
Q704
Q706
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Q713
Q714
Q715
Q716
Q801
Q802
Q803
Q804
Q805
D321
D322
D303
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D306
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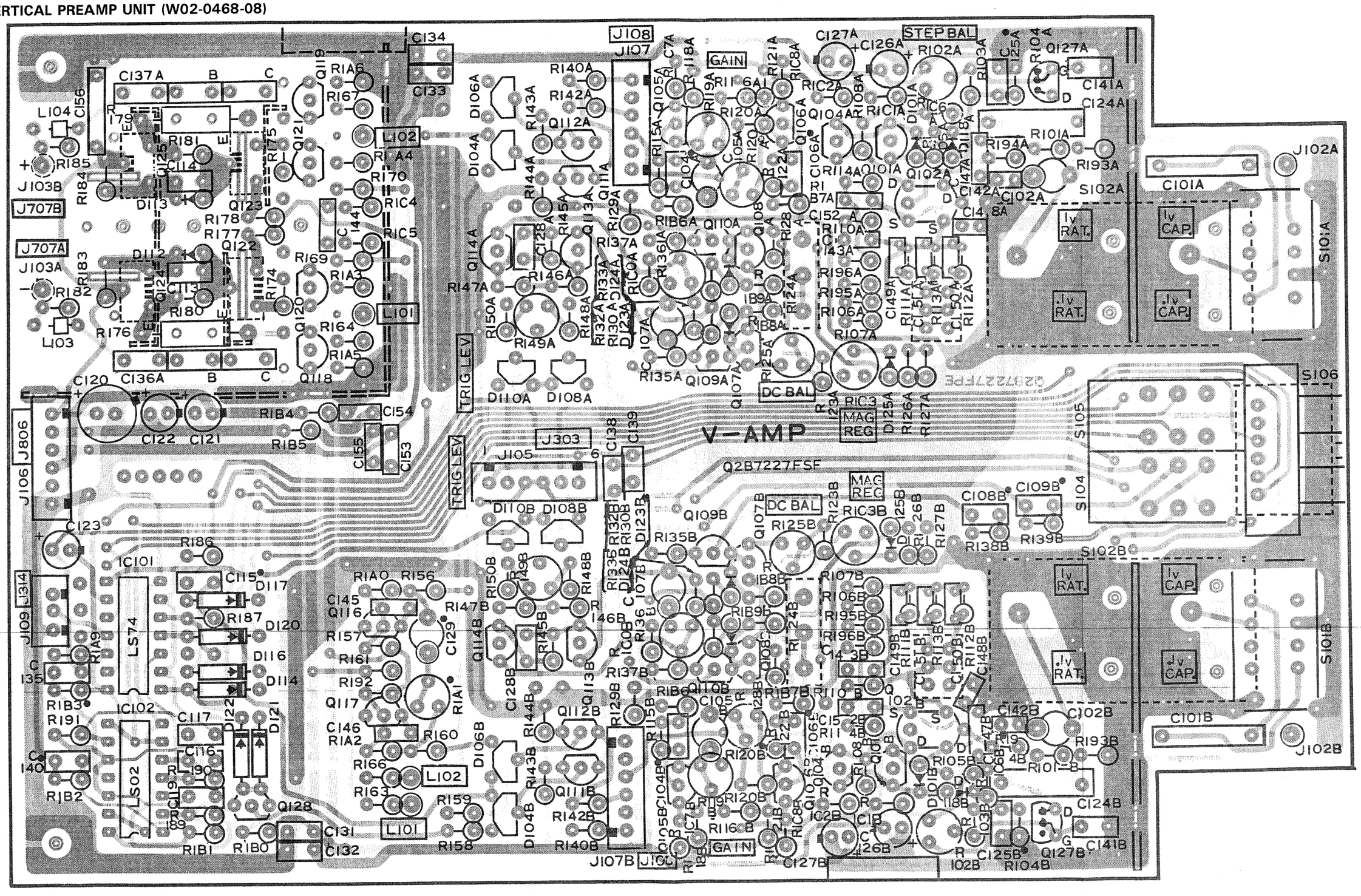
D708
D709
D710
D711
D712
D713
D714
D716
D717
D801
D802
D804
D807
D808
D809
D902
SUB POS
MAG REG
NORM GAIN
MAG GAIN
COUPLE
S302
TIME/DIV
S304
INTE
FC
SUB INTEN
SUB FC
ASTIG
ROTATOR
P803
J703
J701
J702
J805
J906
J903
J902
J901
CAL
J910
J908
J909
J809
J808
J802
J801
W802
J803
T801
T701
S801
POWER
F. ADJ
V. ADJ
P809
P802
P801
FI
WHT(N)
GRN
WHT(L)
RED
BRN
BLU
BLK
115V
100V
0V
120V
CS-3035

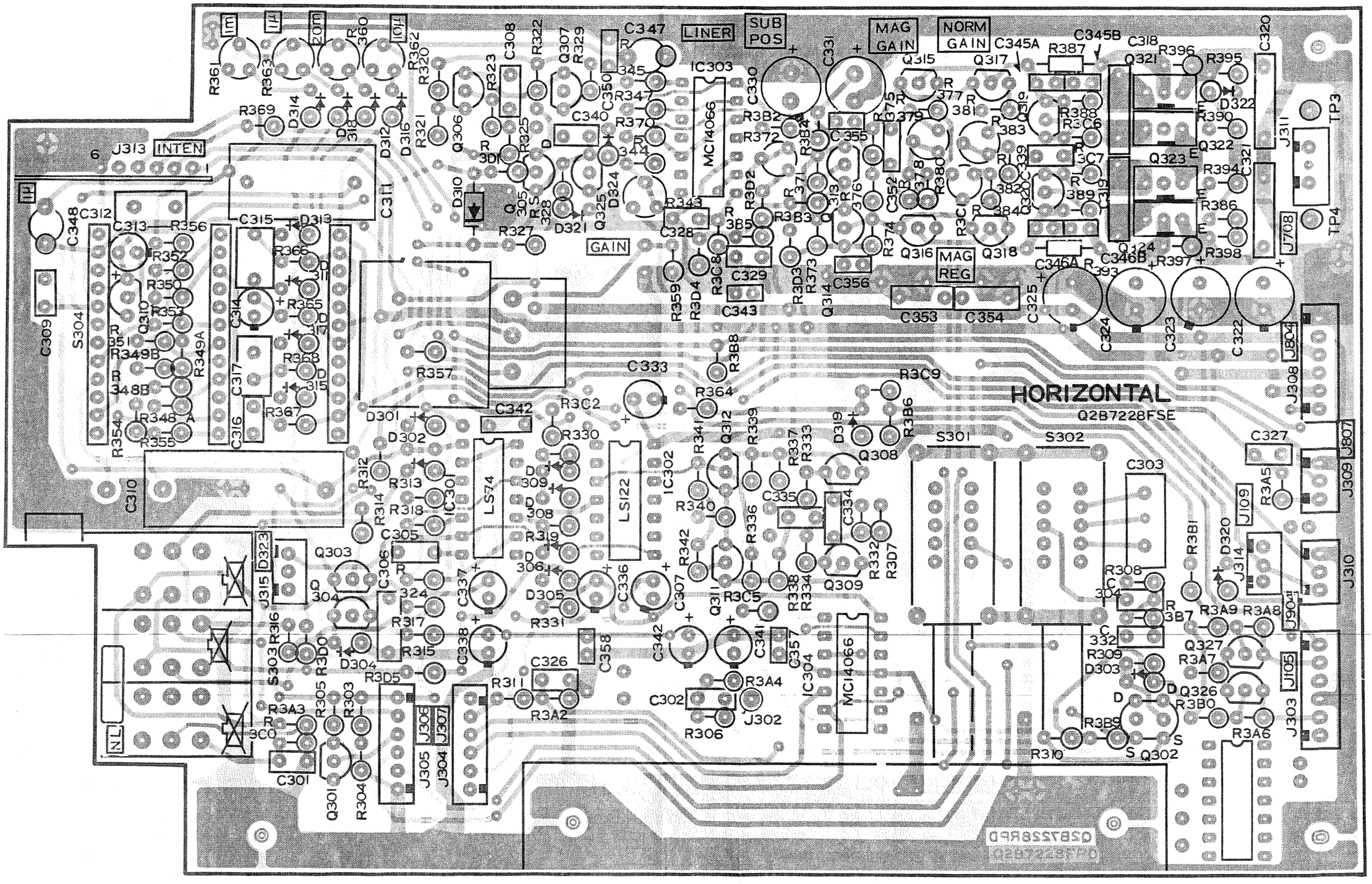
CS-3035 P.C. BOARD

VERTICAL PREAMP UNIT (W02-0468-08)



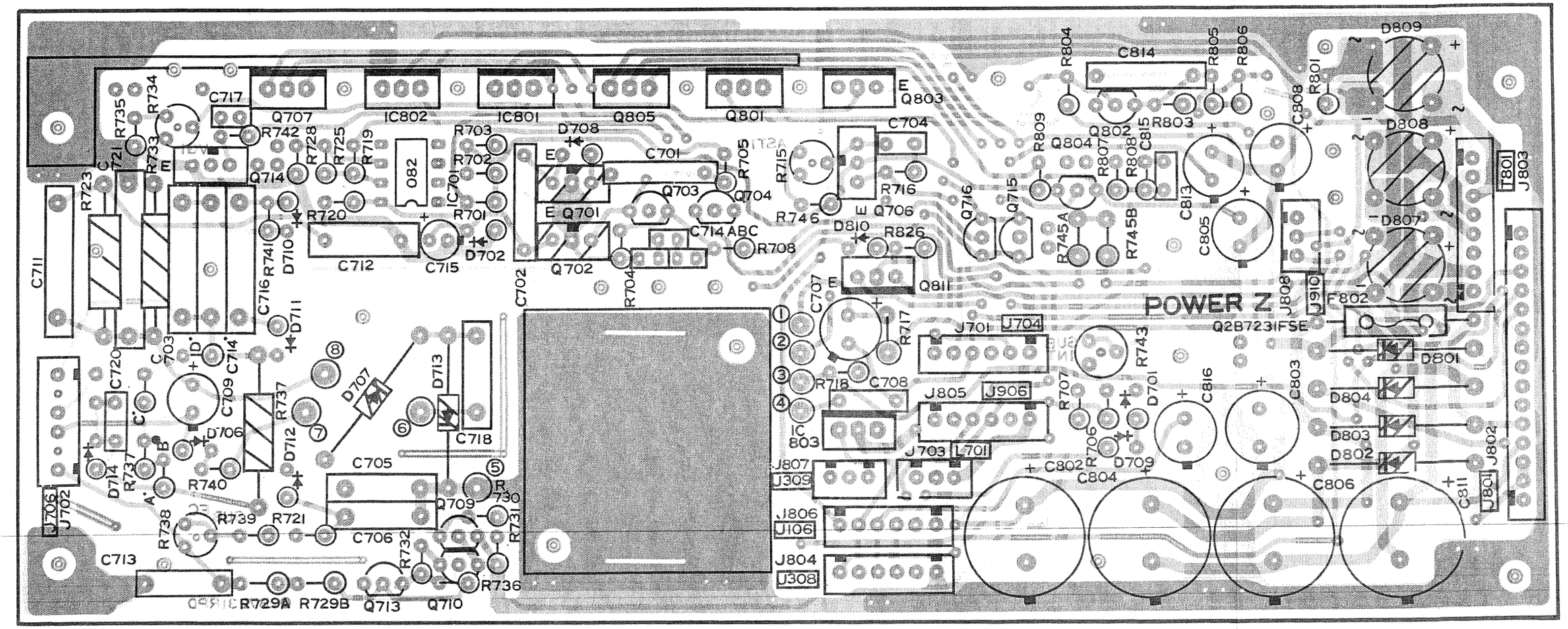
CS-3035 P.C. BOARD

HORIZONTAL UNIT (W02-0469-08)



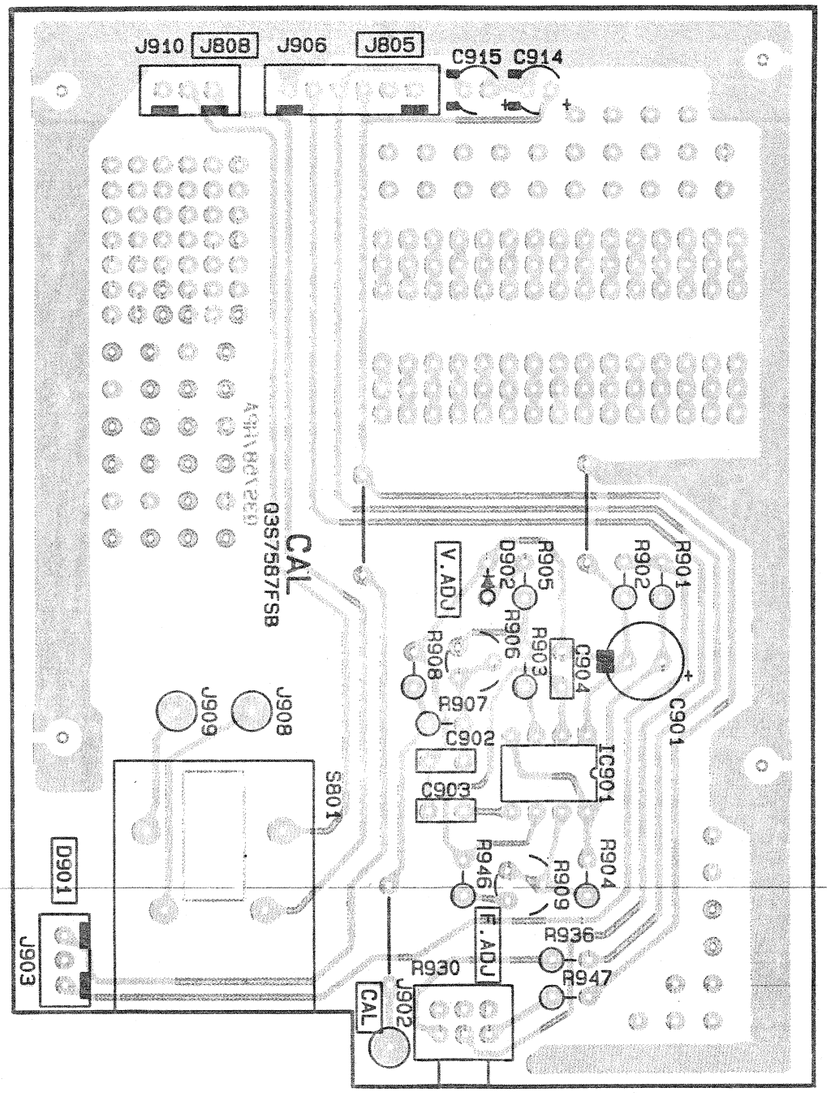
CS-3035 P.C. BOARD

POWER SUPPLY & Z AXIS UNIT (W02-0473-08)

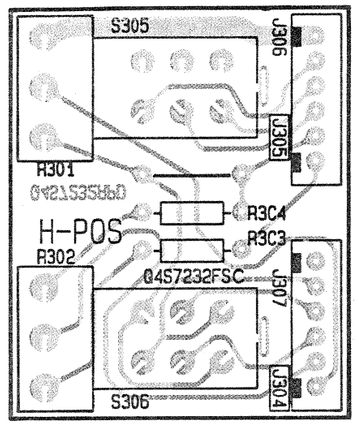


CS-3035 P.C. BOARD

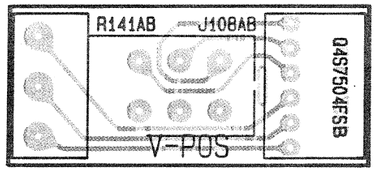
CALIBRATOR UNIT (W02-0467-08)



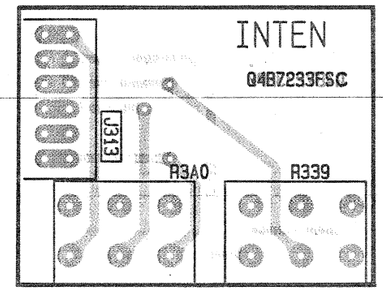
H-POSITION UNIT (W02-0471-08)



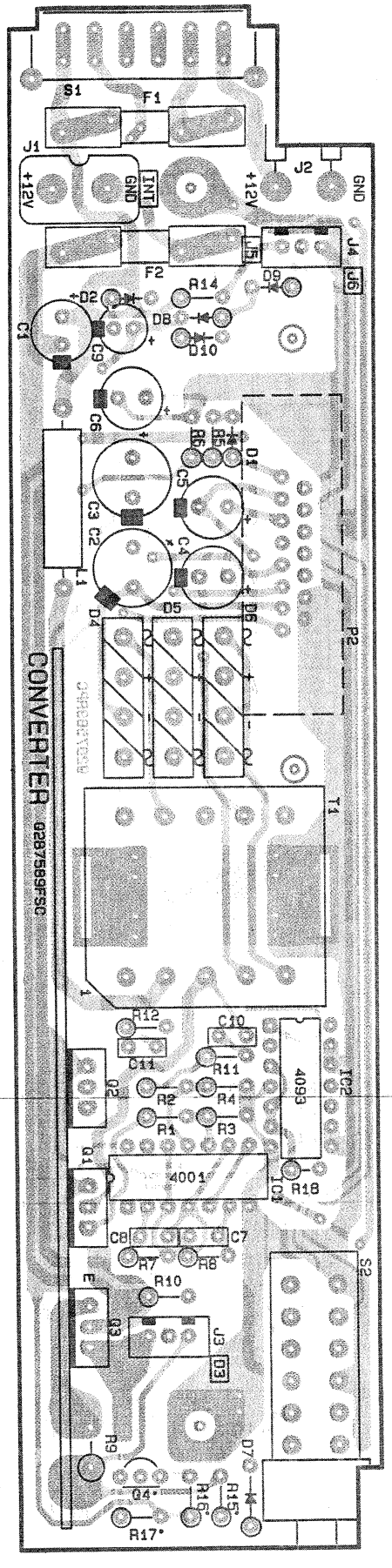
V-POSITION UNIT (W02-0470-08)

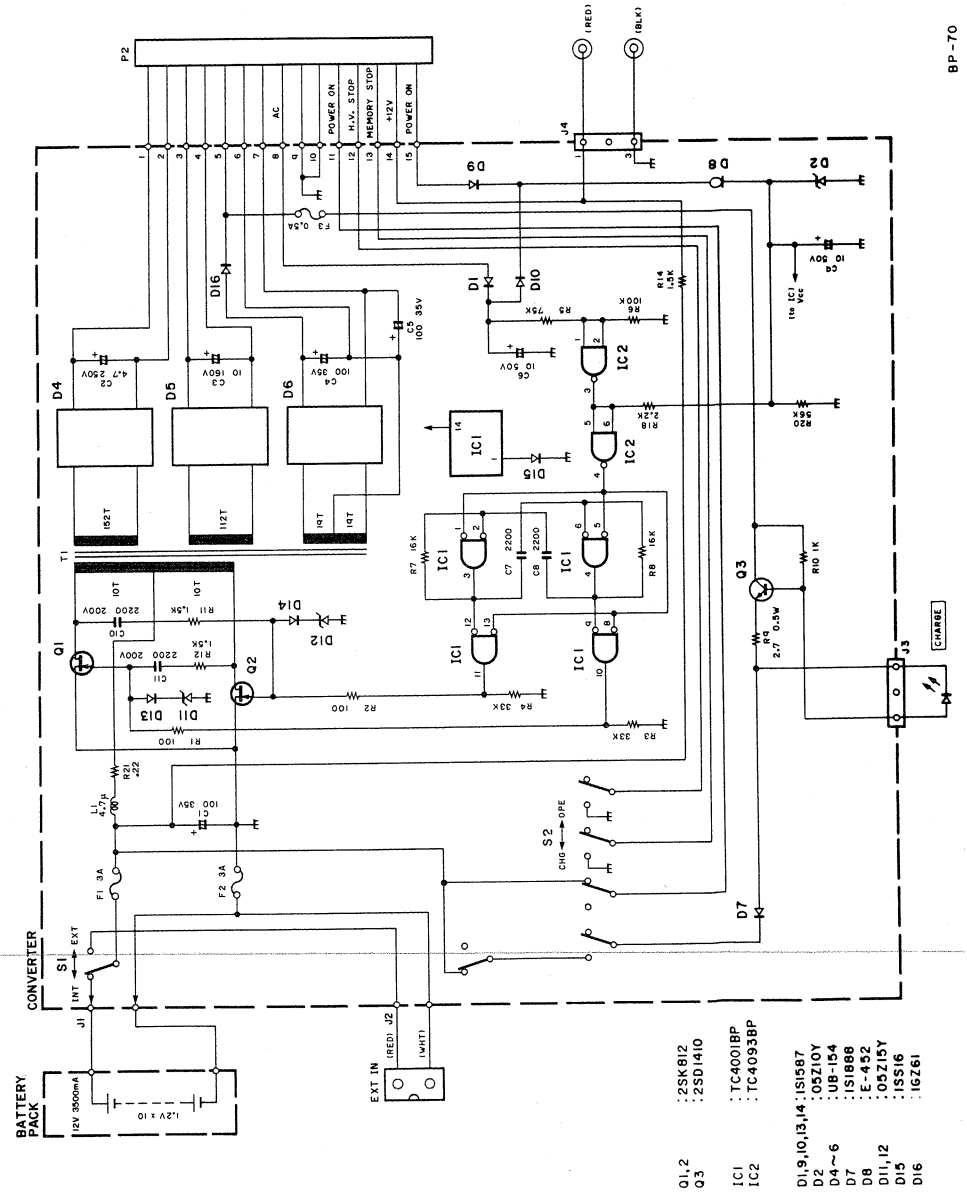


INTEN UNIT (W02-0472-08)



CONVERTER UNIT (W02-0462-08) BP-70 P.C. BOARD/SCHEMATIC DIAGRAM





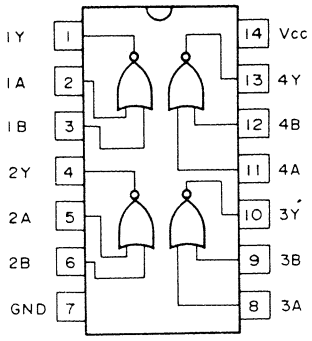
Q1,2 : 2SK812
Q3 : 2SD1410

IC1 : TC4001BP
IC2 : TC4093BP

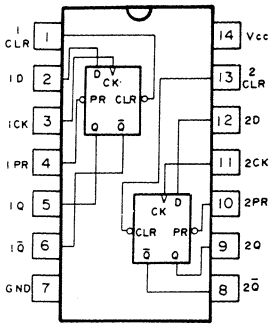
D1,9,10,13,14 : 1S1587
D2 : 05Z10Y
D4~6 : UB-154
D7 : 1S1888
D8 : E-452
D11,12 : 05Z15Y
D15 : 1SS16
D16 : 1G2G1

BP-70

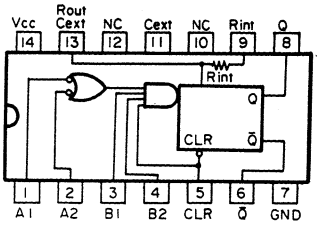
SEMICONDUCTORS



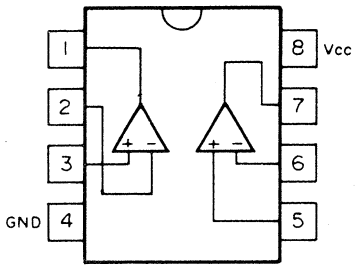
SN74LS02N



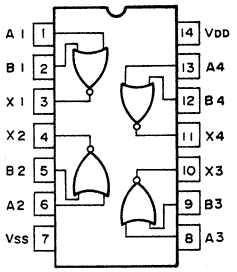
SN74LS74AN



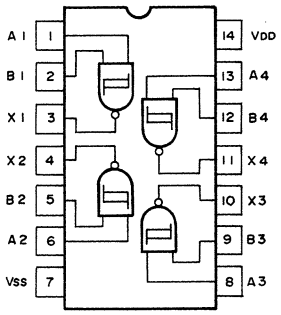
SN74LS122N



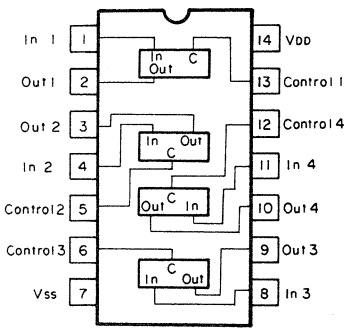
TL082CP



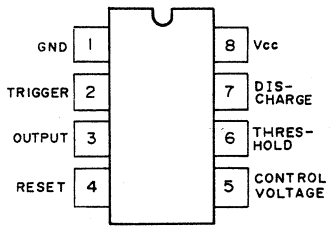
TC4001BP



TC4093BP



MC14066BCP



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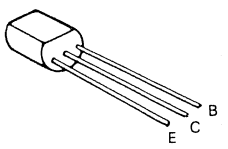

2SA781
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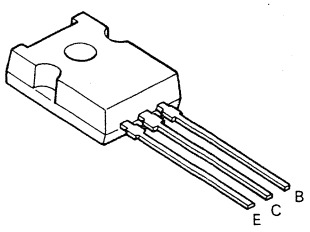
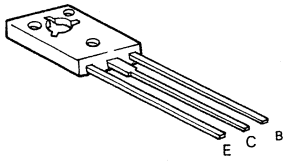
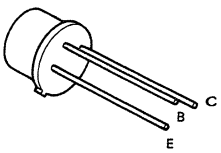
2SA1015 (Y)
2SA1019 (O)
2SC1730
2SC1815 (GR)
2SC1923 (O)
2SC2240



2SA1360 (Y)
2SC3423 (Y)



2SA1381
2SC3503



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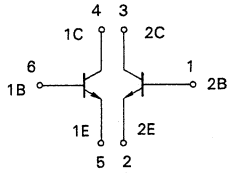
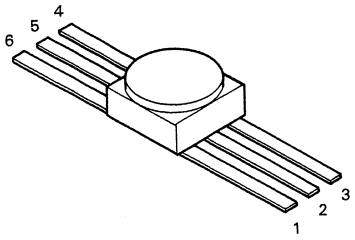
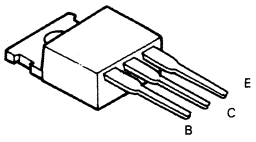
SEMICONDUCTORS

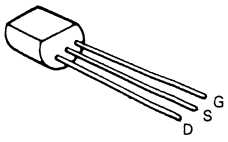




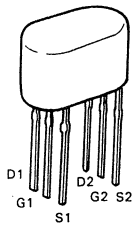
2SC1925 (O)



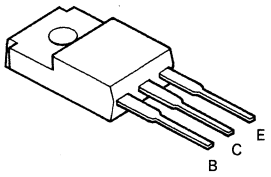
2SD880 (GR)



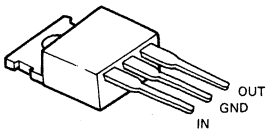
2SK117 (BL)



2SK240 (BL)



2SD1410



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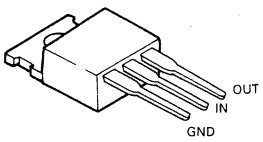

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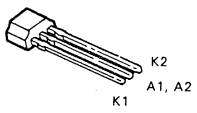
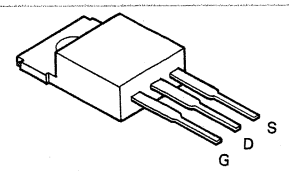
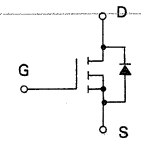


1SS200





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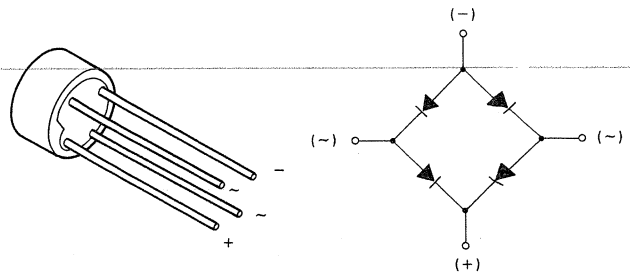

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